Key to Oceanographic Records Documentation No. 14

National Oceanographic Data Center Users Guide

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Key to Oceanographic Records Documentation No. 14

National Oceanographic Data Center
USERS GUIDE

(Second Edition)

National Oceanographic Data Center
Washington, D.C.

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U.S. DEPARTMENT OF COMMERCE
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In order to be kept current by automatic receipt of updated and revised pages, this copy of the NODC Users Guide must be registered. A return postcard for this purpose is inserted in the inside front cover pocket. If you have not already done so, please complete this registration card and mail it to:

National Oceanographic Data Center
User Services Branch
NOAA/NESDIS E/OC21
Washington, DC 20235

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Preface

This Users Guide is the basic document that describes the data and information products and services of the National Oceanographic Data Center (NODC). It includes information on NODC data holdings, data products, and electronic and hardcopy information products, as well as data processing, data management, and international data exchange services. It lists NODC contact points, tells how to submit orders, and provides information on user charges and user payment procedures. This second edition of the *NODC Users Guide* (Key to Oceanographic Records Documentation No. 14) replaces the first edition published in 1984.

LIST OF EXHIBITS

The following chart is inserted in the inside front cover pocket of the *NODC Users Guide*:

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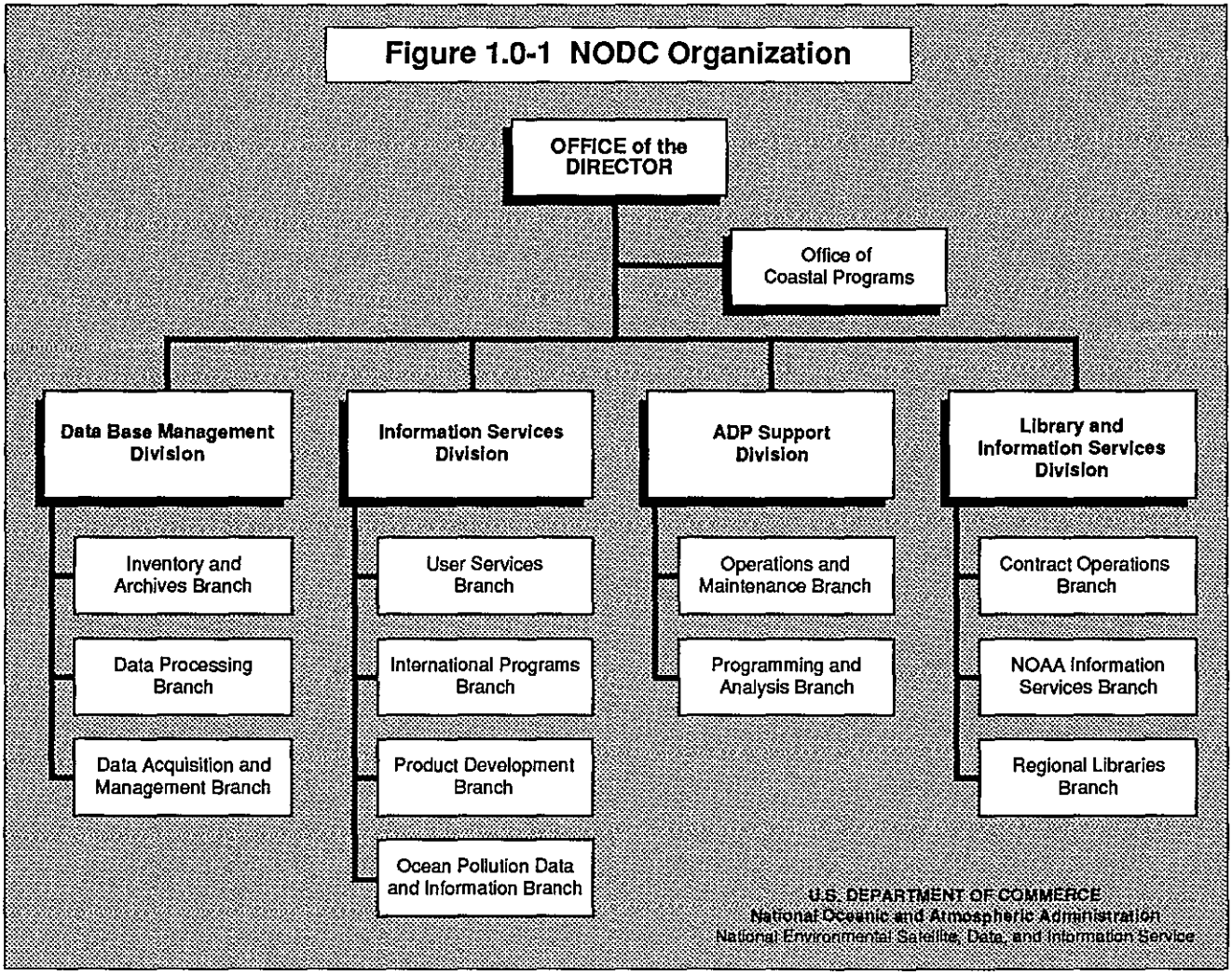
1.0 INTRODUCTION: NODC'S MISSION AND FUNCTIONS

The National Oceanographic Data Center (NODC) is the United States national facility established to acquire, process, store, and disseminate global oceanographic data (Figure 1.0-1). NODC is one of three national data centers within the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The others are the National Climatic Data Center (NCDC), Asheville, N.C. and the National Geophysical Data Center (NGDC), Boulder, Colo. In addition, the National Snow and Ice Data Center (NSIDC) is operated for NGDC by the University of Colorado, Boulder, Colo. Working in close cooperation these centers provide users with a complete range of environmental data and information.

NODC's master data files and other data holdings include data collected by U.S. Federal agencies, including the Department of Defense (primarily the U.S. Navy); State, and local government agencies; universities and research institutions; and private industry. NODC does not conduct any data collection programs of its own; it serves solely as a repository and dissemination facility for data collected by others.

A large portion of the data held by NODC is of foreign origin. NODC acquires foreign data through direct bilateral exchanges with other countries and through the facilities of World



Data Center A (WDC-A) for Oceanography, which is operated by NODC under the auspices of the U.S. National Academy of Sciences. There are three World Data Centers for Oceanography: World Data Center A, Washington, D.C., World Data Center B, Moscow, U.S.S.R., and World Data Center D, Tianjin, P.R.C. They are part of the World Data Center system initiated in 1957 to provide a mechanism for data exchange during the International Geophysical Year. The World Data Center system operates under guidelines issued by the International Council of Scientific Unions (ICSU).

NODC also manages the NOAA Central Library and its regional libraries in Miami, Fla. and Seattle, Wash. The combined libraries contain more than 1 million volumes, including books, journals, data and information CD-ROMs, and video tapes. The Central Library coordinates the NOAA Library and Information Network, which consists of more than 30 member libraries, information centers, and special collections within NOAA.

Each year NODC responds to thousands of requests from users in the United States and around the world. NODC data support research and development in offshore engineering, ocean resource development, marine environmental protection, national defense, and theoretical oceanography. As a service organization, NODC welcomes inquiries from all potential users.

2.0 HOW TO USE THIS GUIDE

The *National Oceanographic Data Center Users Guide* is written to provide an introductory description of all NODC data and information products and services. The information included here should be sufficient for a potential user to know:

- what types of data and information are held by NODC and in what forms they can be provided;
- basic procedures by which NODC acquires, processes, quality controls, and archives data and the ancillary data services provided to users in connection with these operations;
- how NODC products and services are related to certain other ocean products and services available from the National Oceanic and Atmospheric Administration; and
- what information the user should provide to NODC to define a data or information request and how to submit an order.

This guide is prepared in a loose-leaf format so that it can be easily updated. When new products or services are developed, new pages will be printed and distributed. When information in the Guide changes, the affected pages will be rewritten and revised pages issued.

The following sections describe:

- how the Guide is organized (Section 2.1), and
- how to keep the Guide up-to-date (Section 2.2).

2.1 Guide Organization

At the top of every page of the Guide is a page header block that gives the date (month and year) in which the page was published and the section and page numbers. Sections and subsections are decimal numbered. Page numbering starts from one (1) in each section and subsection. Therefore, a page is uniquely identified by its combination of section and page number.

Sections 1 through 3 of the Guide introduce the National Oceanographic Data Center, describe how to use the Guide, and tell how to order NODC products and services.

Sections 4 though 6, which constitute the largest part of the Guide, describe NODC's digital data holdings, available kinds of data inventory information, and the various kinds of tailored products that can be routinely generated (using available programs) from the data in NODC's data files.

Sections 7 through 8 cover NODC publications and available marine information and referral services.

Sections 9 through 13 cover NODC operations and activities for acquiring and processing data. This includes a discussion of NODC data management services and services related to international exchange of marine scientific data.

Section 14 contains the Page Date List, the key to maintaining the Guide up-to-date, and an alphabetic index to the Guide. The index enables users to find information on data that include a specific parameter, derived from a particular instrument, or are related to a scientific discipline.

Section 15 contains appendixes that provide technical details about certain NODC operations and procedures.

Finally, Section 16 is set aside as a place for users to file the data product and service announcements that NODC publishes under the NODC Environmental Information Bulletin series. This series comprises fliers used to inform users of the availability of new NODC publications, data sets, and services. Although some of the information released in this form will later be incorporated into the main body of the *NODC Users Guide*, the complete series of fliers should also serve as a useful reference source.

2.2 Updating the Guide

The loose-leaf format of the *NODC Users Guide* permits updating through the addition of new pages or substitution of revised pages. The DATE block at the top left of every page gives the month and year of publication of the page. The Page Date List (Section 14.1) gives the current data for every page in the Guide. This list is updated and reissued every time the Guide is updated. Therefore, users can determine if their copy of the Guide is up-to-date by checking the DATE block on each page versus the current release of the Page Date List. The Page Date List is itself dated so users can check with NODC if they are not sure that they have received the most recent version.

NODC maintains a mailing list of Guide holders that is used for mailing updated pages. If you have not already done so, please complete and return to NODC the Users Guide registry form. Names and addresses on returned forms will be added to the mailing list and automatically receive updates, including announcements in the NODC Environmental Information Bulletin Series (Section 16).

3.0 REQUESTING NODC PRODUCTS AND SERVICES

NODC data and information products and services are available on request to all users. Requests may be submitted by letter, telephone, or visit to the NODC. Advance notice is strongly recommended, however, for persons who wish to visit and consult with NODC staff members at the headquarters facilities in Washington, D.C. or the NODC Liaison Offices located at field sites around the United States. Customers with access to electronic networks will also be able to obtain information about NODC products and services, conduct interactive searches of some NODC data files, and send messages to the NODC by this means of communication.

NODC products and services are provided on a cost-recovery basis in conformance with guidelines and policies established by NOAA and the Department of Commerce. Information about NODC products and services and user consultation services provided to users to help them formulate data requests are provided without cost or obligation.

This section provides further information about ordering NODC products and services and about user charges and payment procedures.

3.1 Contact Points

The main facility of the National Oceanographic Data Center is located in Washington, D.C. The primary point of contact for users who wish to request NODC ocean data products or services is the User Services Branch in NODC's Information Services Division.

In addition, NODC has five Liaison Offices located at the following sites of major concentrations of U.S. marine research and development activity: (1) Woods Hole, Mass., (2) Miami, Fla., (3) La Jolla, Calif., (4) Seattle, Wash., and (5) Anchorage, Alaska. The Liaison Officers who head these facilities assist users both in submitting data to and receiving data from NODC. Through their extensive networks of personal contacts, they can be particularly helpful in providing information about marine science activities, experts, and data sources in their respective regions.

NODC also manages the Ocean Pollution Data and Information Network (OPDIN), which provides special assistance to customers in obtaining ocean pollution data and information. OPDIN is a cooperative effort among 11 Federal departments and agencies to improve the coordination of marine pollution programs and activities within the Federal government. In 1981 a Central Coordination and Referral Office (CCRO) was established at NODC to head and direct the development of OPDIN. It also serves as a single, central point of contact for users who need ocean pollution data or information and who are unsure of where to obtain it.

The NOAA Central Library serves researchers, scientists, and the public in identifying, accessing, and retrieving information and data in the marine and atmospheric sciences. Although the library system is organizationally under the NODC, it serves users in disciplines including: geophysics, aquaculture, meteorology, oceanography, and satellites and remote sensing. A 1,000-volume rare book collection contains unique and special materials in scientific areas related to NOAA's mission. The Central Library serves as a key starting point for those who need information and data in climatology, historic foreign meteorological data (1800s through the 1960s), and government publications and reports. It also provides a basic law collection for users in the metropolitan Washington, D.C. area.

Users may direct inquiries to any of these offices. Their personnel are experienced in providing consultation to users and are accustomed to working together to fulfill user requests. Mailing addresses, telephone numbers, and electronic mail addresses of these NODC contact points are listed in Table 3.1-1.

Table 3.1-1 NODC Contact Points

NODC HEADQUARTERS

User Services Branch
National Oceanographic Data Center
NOAA/NESDIS E/OC21
1825 Connecticut Avenue, NW
Washington, DC 20235
Telephone: 202-673-5549
FTS 673-5549
FAX: 202-673-5586
E-Mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet*

Ocean Pollution Data and Information Network/CCRO
National Oceanographic Data Center
NOAA/NESDIS E/OC24
1825 Connecticut Avenue, NW
Washington, DC 20235
Telephone: 202-673-5539
FTS 673-5539
FAX: 202-673-5586
E-Mail: *NODC.POLLUTION.INFO*
on Omnet/SCIENCEnet

**formerly the NASA Space Physics Analysis Network (SPAN)*

NODC LIAISON OFFICES

Alaska Liaison Office
NOAA/NESDIS
707 A Street
Anchorage, AK 99501
Telephone: 907-271-4063 or
907-257-2741
FTS 868-4063

Northwest Liaison Office
NOAA/NESDIS/Bin 15700/Bldg. 1
7600 Sand Point Way, NE
Seattle, WA 98115
Telephone: 206-526-6263
FTS 392-6263

Southwest Liaison Office
NOAA/NESDIS
8604 La Jolla Shores Drive
P.O. Box 271
La Jolla, CA 92037
Telephone: 619-546-7110
FTS 893-7110

Southeast Liaison Office
NOAA/NESDIS/AOML Building
4301 Rickenbacker Causeway
Miami, FL 33149
Telephone: 305-361-4305
FTS 350-1305
E-mail: J.SYLVESTER on
Omnet/SCIENCEnet

Northeast Liaison Office
NOAA/NESDIS/McLean Laboratory
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
Telephone: 508-548-1400 X2497
FTS 828-9279
E-mail: G.HEIMERDINGER on
Omnet/SCIENCEnet

NODC CENTRAL AND REGIONAL LIBRARIES

NOAA Central Library
6009 Executive Boulevard
Rockville, MD 20852
Telephone: 301-443-8330
FTS 443-8330
FAX: 301-443-0237
E-Mail: *NOAA.LIBRARY*
on Omnet/SCIENCEnet

AOML/NOAA Library
4301 Rickenbacker Causeway
Miami, FL 33149
Telephone: 305-361-1429
FTS 350-1429
FAX: 305-361-1449
E-Mail: *AOML.LIBRARY*
on Omnet/SCIENCEnet

PMEL/NOAA Library
Building 3
7600 Sand Point Way NE
Seattle, WA 98115-0070
Telephone: 206-526-6241
FTS 392-6241
FAX: 206-526-6815
E-Mail: *PMEL.LIBRARY*
on Omnet/SCIENCEnet

3.2 Ordering Procedures

To request NODC publications, copies of specific data sets, or other off-the-shelf products, NODC users should identify these products as completely as they can. Requests for general information and referral services should spell out both the information required and the application for which it is needed. Knowing about the problem the user is trying to solve often helps NODC to provide more complete and relevant information.

Data selections and data products derived from NODC data files are tailored to user specifications and require the user to select from the available options. For all but the simplest data product requests, users will normally find it helpful to consult with NODC staff. NODC personnel can provide:

- data inventory information on the quantity--and usually the geographic or temporal distribution--of data meeting user selection criteria,
- time and cost estimates for the data products requested, and
- advice and guidance on the best and most efficient way to apply NODC data resources to meet the user's needs and requirements.

Final decisions on data product specifications, however, are the responsibility of the requester. At any time before authorizing NODC to proceed with generation of the requested product, the user may modify or withdraw the request without charge or further obligation.

For orders of moderate size and complexity, normal turnaround time for fulfillment of data product requests sent by first-class mail is two to three weeks. This is the time from when NODC actually receives the order to when the user receives the requested data product. If the user is willing to pay for the added cost of shipment, NODC products can also be sent by a commercial express package service.

Table 3.2-1 presents a checklist of the principal specifications and options available to specify selection and output of data from NODC's Master Data Files. The following sections of this *Users Guide* provide detailed information on NODC data products and services that will help users to define their data requests.

Table 3.2-1 NODC Data Product Specifications

Data type or parameter

- e.g., oceanographic station (Nansen cast) data, CTD/STD data, current meter data, temperature, salinity

Project, if applicable

- e.g., TOGA, SEQUAL, JGOFS

Geographic area

- latitude-longitude bounds or geographic square numbers.

Time period

- all available data or ranges of months/years

Cruise

- NODC cruise number (if known), originator's cruise number, or vessel name and time period

Depth criteria

- e.g., observations deeper than 500 m.

Output format

- e.g., individual observations, data summaries, data plots.

Output medium

- e.g., computer printout, magnetic tape, floppy disk, microform.

3.3 User Charges

In general NODC products and services are provided on a cost recovery basis. User charges are set to conform to policy guidelines established by NOAA and the Department of Commerce and to reflect the actual cost of providing the product or service. Charges may be waived only in a few clearly authorized cases, for example, to comply with the requirements of law, to respond to members of the U.S. Congress, and to advance NODC's customer information and marketing efforts.

With the exception of materials describing NODC products and services that are produced for free dissemination, NODC publications are available at established prices or for a minimum mailing/handling charge. General information requests that can be fulfilled through provision of hardcopy materials or of photocopies are assessed a per page charge for the copies, plus the cost of retrieval, mailing, and handling.

Charges for computer-generated data products depend primarily on computer time and materials such as printout paper or magnetic tapes, but also include associated labor costs. For a number of standard, frequently requested computer-generated data products, NODC has established standard unit prices based on average computer time. For these products the user can be provided an exact price quotation that depends on the quantity of data meeting the user's specifications. For other computer-generated products, costs can only be determined after the job is run, and NODC can only provide cost estimates beforehand. These are just estimates, however, and upon completion and transmittal of the requested data product, the user will be billed the actual cost of generating it.

Users working under time constraints who need faster-than-normal service may request that their jobs be given priority attention. Such rush orders are subject to a minimum $9.00 surcharge. Data products are normally shipped by first class mail. If requested, NODC can arrange for shipment by an express package service. The total cost of this service will be added to the customer's bill for the job.

Table 3.3-1 presents a summary of NODC standard unit costs used in computing charges for data and information products and services.

Table 3.3-1 NODC Standard Unit Costs, FY 1991

1. **Publications** ..... Established price or $3 mailing/handling charge

2. **Order processing/handling**
   (Non-digital product, prepaid) $15

3. **One-to-One Data Set Copies**
   Magnetic tapes
   - Standard density (1600 bpi), standard length (2400 ft.)
     - Single tape: $96
     - Multiple tapes: ..... No. of tapes X $59, plus $37
   - High density (6250 bpi), standard length (2400 ft.)
     - Single tape: $108
     - Multiple tapes: ..... No. of tapes X $71, plus $37
   - High density (6250 bpi), extra long (3600 ft.) .....
     - Single tape: $113
     - Multiple tapes: ..... No. of tapes X $76, plus $37

   Magnetic diskettes
   - 5.25-inch, double sided/double density (DS/DD)
     - Single diskette: $32
     - Multiple diskettes: ..... No. of disks X $8, plus $24
   - 5.25-inch, double sided/high density (DS/HD)
     - Single diskette: $36
     - Multiple diskettes: ..... No. of disks X $12, plus $24
   - 3.5-inch, double sided/double density (DS/DD)
     - Single diskette: $36
     - Multiple diskettes: ..... No. of disks X $12, plus $24
   - 3.5-inch, double sided/high density (DS/HD)
     - Single diskette: $39
     - Multiple diskettes: ..... No. of disks X $15, plus $24

4. **Data Selection/Retrieval and Other Data Products**
   (Minimum charges; actual charges include computer, labor, and materials costs that are determined by job size and complexity. Estimates provided on request.)
   - Printout $73
   - Magnetic tape
     - Standard density (1600 bpi), standard length (2400 ft.) $96
     - High density (6250 bpi), standard length (2400 ft.) $108
     - High density (6250 bpi), extra long (3600 ft.) $113
   - Magnetic diskettes
     - 5.25-inch, double sided/double density (DS/DD) $32
     - 5.25-inch, double sided/high density (DS/HD) $36
     - 3.5-inch, double sided/double density (DS/DD) $36
     - 3.5-inch, double sided/high density (DS/HD) $39
   - Other media or formats (e.g., microfiche/film) ..... On request

5. **Customer billing** $18
   (For non-Federal customers who do not provide prepayment or qualify for a prepayment waiver)

6. **Rush order surcharge** $9

7. **Photocopies** $0.30

3.4 Payments

Payment procedures for NODC products and services differ somewhat depending on whether or not the customer is affiliated with a U.S. Federal government agency.

For Non-Federal Customers

All orders must be prepaid, unless the customer meets strict criteria for a waiver of this requirement. Prepayment may be made by:

- Check (in U.S. funds drawn on a bank in the United States, made payable to "Department of Commerce/NOAA/NODC")
- Money order
- Credit card (visa and MasterCard only)
- Deposit account (where the customer prepays an amount of $500 or more against which charges may be drawn)

For orders less than $100, prepayment may be waived only for local, state, or foreign government agencies or educational institutions whose own regulations forbid payment until receipt of the service or product. If a copy of, or reference to, the regulation prohibiting prepayment is submitted to or already on file at NODC, purchase orders may be accepted as prepayment.

For orders costing $100 or more, purchase orders can be accepted as prepayment only if: (1) the product or service requested is so complex that the cost cannot be determined beforehand, or (2) the product or service is requested by a major non-governmental organization that would suffer significant adverse impact from the prepayment requirement, or (3) the order must be filled quickly (e.g., supply of information to the press, data applications in life-threatening situations) and prepayment by credit card or deposit account is not feasible.

Deposit accounts are recommended for frequent customers who need fast delivery. NODC provides this service without additional charge and can set up a deposit account against which charges can be drawn with a minimum initial deposit of $500. Customers will be informed of the status of their account when action takes place against it. The account will be closed if it is not used for one year, and the balance is below $25. If this occurs, the balance is refunded to the customer. Requests for assistance in establishing deposit accounts and inquiries about NODC payment procedures should be directed to the NODC User Services Branch.

For Federal Customers

All forms of payment--check, money order, credit card, deposit account, and valid government purchase orders--are acceptable.

4.0 NODC DATA HOLDINGS

The National Oceanographic Data Center stores physical, chemical, and biological oceanographic data. These data are collected in the water column from the sea surface to the sea floor. NODC data holdings include: measurements of temperature, salinity, dissolved oxygen, silicate, and other parameters versus depth; observations of ocean surface currents and data on subsurface currents from moored current meters; instrument-measured wave data; and satellite observations of global winds and waves. NODC also has extensive holdings of data collected since the mid-1970s to assess the environmental effects of ocean dumping, offshore resource development, and other human activities in the coastal zone of the United States. In addition to the basic kinds of physical-chemical data already mentioned, these data include: measurements of metals, hydrocarbons, and other pollutants; and measurement and observations of marine birds and mammals, fishes and shellfish, phytoplankton, zooplankton, and other organisms.

Marine geology and geophysics data are held by the National Geophysical Data Center (NGDC), Boulder, Colo. These data include sediment core and bottom sample analyses; seismic profile data; and underway geophysics data (gravity, magnetism, and bathymetry). NGDC also holds data on terrestrial heat flow, volcanoes, and earthquakes, including related phenomena such as tsunamis (seismic sea waves).

Surface marine data related to marine meteorology or collected as part of routine shipboard meteorological observation programs are held by the National Climatic Data Center (NCDC), Asheville, N.C. These data include sea surface temperature (SST) measurements; sea and swell wave observations; and associated air temperature, pressure, wind, and visibility data.

Table 4.0-1 summarizes the division of responsibility for marine environmental data among NOAA's national data centers--NODC, NCDC, and NGDC.

Table 4.0-1 NESDIS Marine Data Holdings

NCDC	NODC	NGDC
Air	*Water*	*Earth*
• Temperature	• Temperature	• Heat flow and volcanoes
• Humidity	• Salinity	• Bathymetry
• Wind	• Currents	• Magnetism and gravity
• Pressure	• Chemistry and pollutants	• Earthquakes/seismic data
• Waves (Observed)	• Waves (instrument-measured; satellite-sensed)	• Tsunamis
• Meteorological satellite data and imagery	• Biology	• Sediments

Although NODC has begun migrating some of its most frequently used data to optical disk storage, most digital data are still held on magnetic tape (9-track, ASCII character format). These digital data holdings fall into two principal categories: (1) NODC Master Data Files, and (2) NODC Data Sets. The following sections describe these NODC data holdings.

4.1 Master Data Files

NODC's master data files are its primary data resource. Each data file is a computerized collection of data covering certain parameters collected by similar instruments or techniques and stored in a standard digital format. These data files contain millions of observations taken on numerous cruises over the years and decades since the beginning of the 20th century. The Master Data Files have the following characteristics:

- each file contains one type of data
- each file is a collection of many smaller data sets
- data in each file are processed, stored, and disseminated in a standard digital format
- data are subject to NODC data quality control procedures
- data are inventoried and may be selectively retrieved either by cruise or by geographic area and time period.*

Selected subsets of data in the Master Data Files can be provided to requesters on magnetic tape or (for small amounts of data) on floppy disks in the standard NODC storage format. In addition, data in the larger and more important of these files can also be provided as formatted listings, summaries, analyses, and other data products (Section 6).

To increase the efficiency of data retrieval operations, some of NODC's Master Data Files are maintained in two different versions on separate sets of magnetic tapes. One version of the file is sorted by NODC cruise number. It is referred to as the cruise file and used for retrieval of data from specified cruises. The other version is sorted by a geographic grid numbering system. It is referred to as the geofile and used for retrieval of data for specified geographic areas. Further details about the geographic numbering system used by NODC are given in Section 15.1 (Appendix A).

The following pages in this section provide descriptions of each of NODC's Master Data Files. Each data file description includes a complete record layout of the file format. Data inventory plots that show geographic data distribution are included. For NODC's largest global data files the inventory plots give counts of observations by ten-degree squares; for the other files data holdings are shown as station location plots. Preceding the individual data file descriptions is a summary index (Table 4.1-1) listing all NODC Master Data Files and their current data volumes.

**Time series data are stored in one-month segments. Therefore, the month is the smallest time interval by which data can be selected from these files.*

Table 4.1-1 NODC Master Data File Summary Index

Section	File	File Designator	Amount of Data
	Physical/Chemical Data		
4.1.1	Oceanographic Station Data	SD	852,848 stations
4.1.2	Low-resolution CTD/STD Data	C022	69,282 stations
4.1.3	High-resolution CTD/STD Data	F022	70,566 stations
4.1.4	Bathythermograph Data		
4.1.4.a	Mechanical Bathythermograph Data	MBT	983,274 stations
4.1.4.b	Expendable Bathythermograph Data	XBT	859,582 stations
4.1.4.c	Selected Depth Bathythermograph Data	SBT	241,229 stations
4.1.4.d	Radio Message Bathythermograph Data	IBT	412,658 stations
4.1.5	Ship Drift Surface Currents	SCUDS	4,175,000 obs.
4.1.6	Drifting Buoy Data	F156	8,311 obs.-months
4.1.7	Current Meter Data (Resultants)	F005	8,236 obs.-months
4.1.8	Current Meter Data (Components)	F015	31,475 obs.-months
4.1.9	Sea Level Data, Hourly	F184	134 stations
4.1.10	Sea Level Data, Daily	F185	134 stations
4.1.11	Sea Level Data, Monthly	F186	134 stations
4.1.12	Meteorology and Wave Spectra from Buoys	F191	12,092 obs.-months
4.1.13	Wind Measurements from Buoys	F101	221 obs.-months
4.1.14	Pressure Gauge Data	F017	1,006 obs.-months
4.1.15	Water Physics and Chemistry	F004	71,712 stations
4.1.16	Marine Chemistry	F069	1,665 stations
4.1.17	Marine Toxic Substances and Pollutants	F144	24,465 stations
	Biological Data		
4.1.18	Phytoplankton	F028	2,256 stations
4.1.19	Zooplankton	F124	15,062 stations
4.1.20	Primary Productivity 1	F029	5,077 stations
4.1.21	Primary Productivity 2	F049	924 stations
4.1.22	Intertidal Organisms and Habitats	F030	975 stations
4.1.23	Intertidal/Subtidal Organisms and Habitats	F100	280 stations
4.1.24	Benthic Organisms	F132	26,800 stations
4.1.25	Fish/Shellfish Surveys	F123	14,881 stations
4.1.26	Marine Animal Sighting and Census	F127	54,711 stations

4.1.1 Oceanographic Station Data (SD)

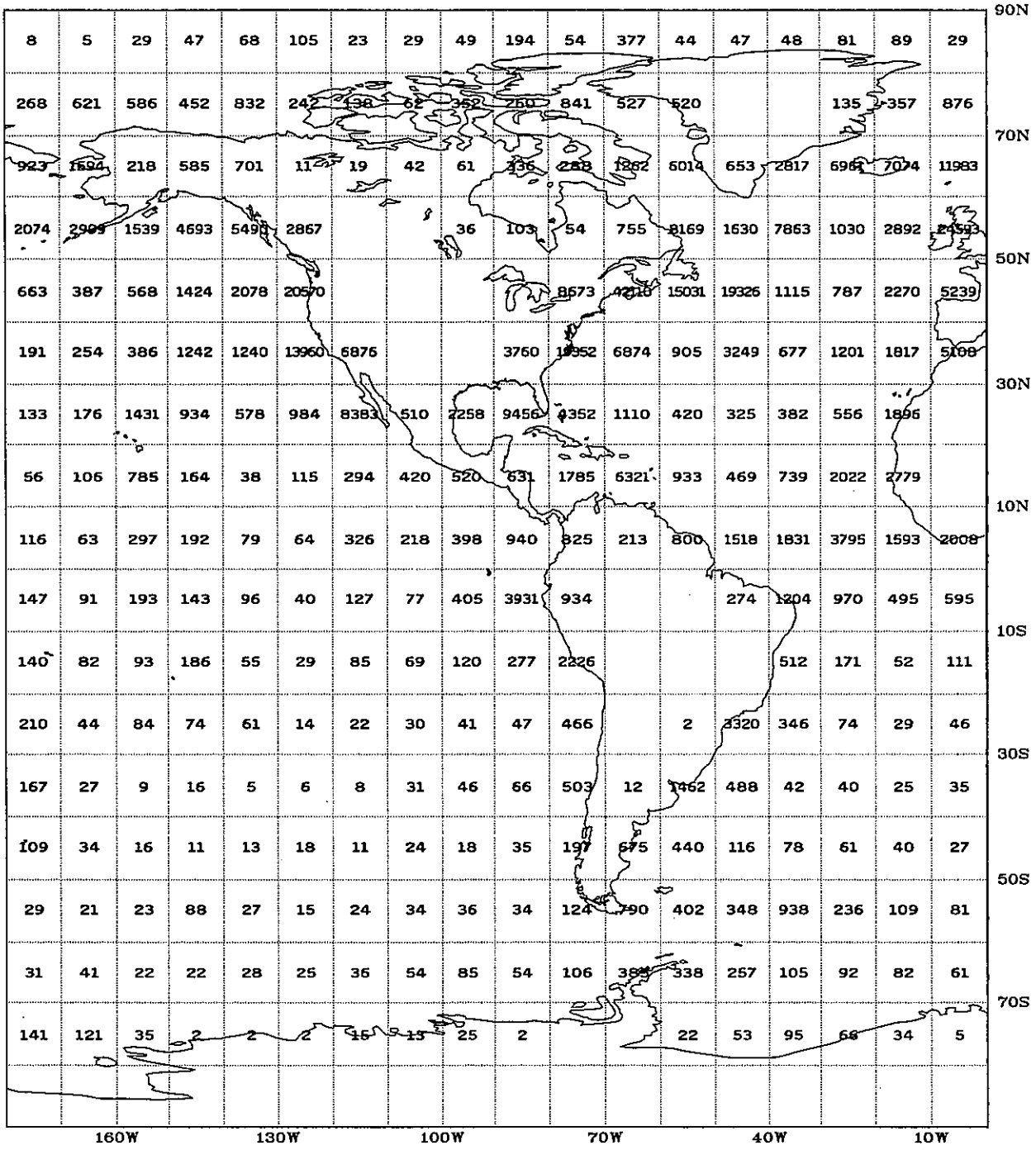
Geographic area: Worldwide oceans

Time period: 1900 - present

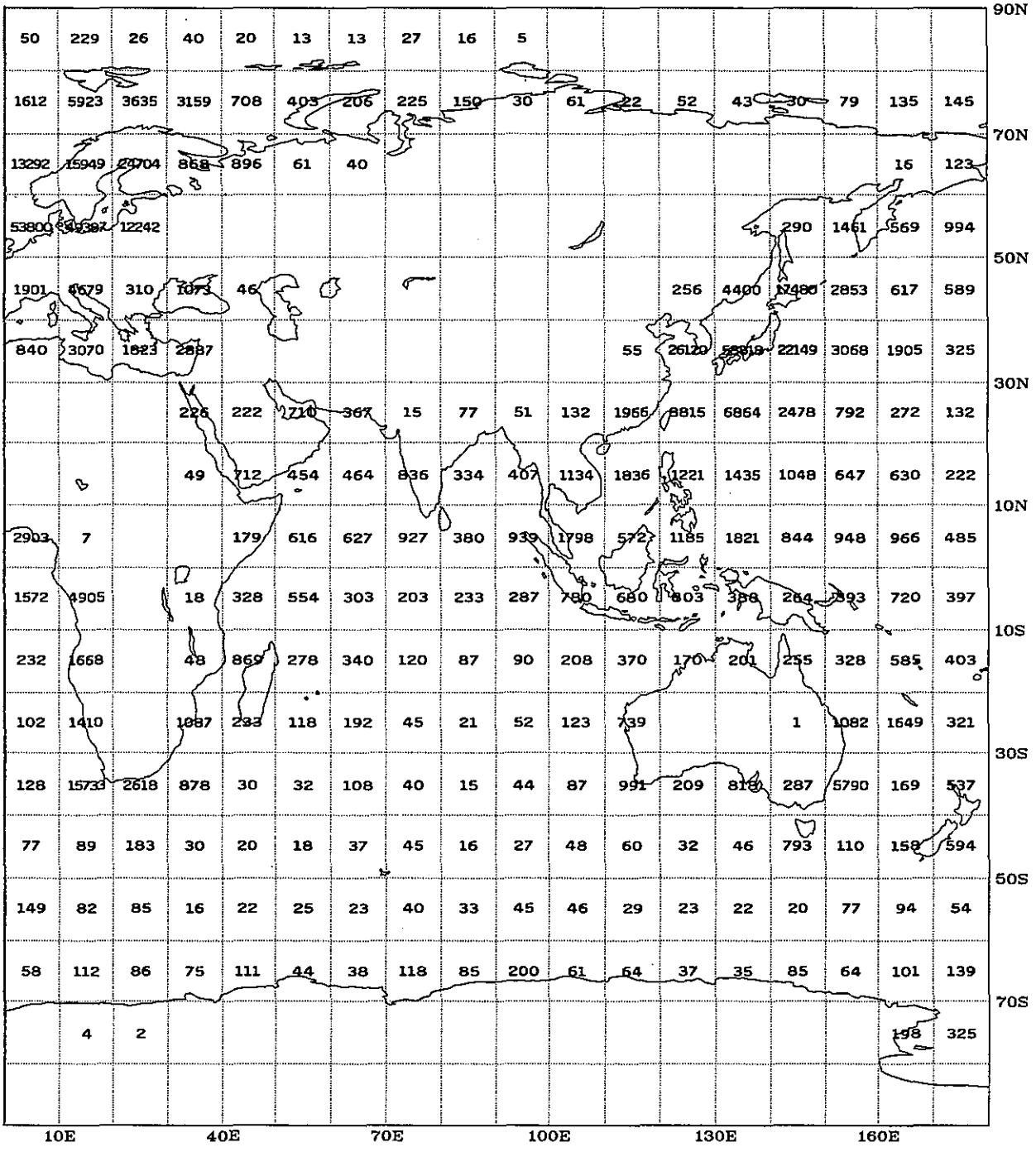
This file contains physical-chemical oceanographic data recorded at discrete depth levels. Most of the observations were made using multi-bottle Nansen casts or other types of water samplers. A small amount (about 5 percent) were obtained using electronic CTD (conductivity-temperature-depth) or STD (salinity-temperature-depth) recorders. The CTD/STD data were reported to NODC at depth levels equivalent to Nansen cast data, however, and have been processed and stored the same as the Nansen data. Cruise information (e.g., ship, country, institution), position, date, and time, are reported for each station. The principal measured parameters are temperature and salinity, but dissolved oxygen, phosphate, total phosphorus, silicate, nitrate, nitrite, and pH may be reported. Meteorological conditions at the time of the cast (e.g., air temperature and pressure, wind, waves) may also be reported, as well as auxiliary data such as water color (Forel-Ule scale), water transparency (Secchi disk depth), and depth to bottom. Values of density (sigma-t), sound velocity, and dynamic depth anomaly are computed from measured parameters. Each station contains the measurements taken at observed depth levels, but also includes data values interpolated to a set of standard depth levels (Section 15.2, Appendix B). This file is maintained in both cruise file and geofile versions.

[**NOTE:** Oceanographic station data are stored by NODC and provided to users in this format, designated as the Station Data 2 (SD2) format. Data should still be submitted to NODC, however, in the fixed-length, 80-character records referred to as Station Data 1 (SD1).]

Oceanographic Station Data



Oceanographic Station Data



File Structure -

Variable-length records: each observation comprises 160 characters of master (header) information plus 80 characters for each depth level (observed or standard) up to a maximum of 4,160 characters (Master Information plus 50 depth levels) per physical record; a continuation indicator is used to denote observations with more than 50 depth levels that are recorded on more than one physical record.

File Format -

Oceanographic Station Data (SD2)

PARAMETER	DESCRIPTION	SC	FL
MASTER RECORD 1			
CONTINUATION INDICATOR	ONE-DIGIT CODE - INDICATES IF STATION RECORDED ON MULTIPLE PHYSICAL RECORDS (0 = ONLY ONE RECORD FOR STATION; 1 = FIRST RECORD OF STATION; 9 = LAST RECORD OF STATION; 2-8 = INTERMEDIATE RECORDS)	1	1
BLANK	ONE BLANK	2	1
NODC REFERENCE NUMBER -			
COUNTRY	TWO-CHARACTER NODC COUNTRY CODE	3	2
FILE CODE	ALWAYS '5'	5	1
CRUISE	XXXX - NODC CRUISE NUMBER	6	4
CONSEC	XXXX - NODC CONSECUTIVE STATION NUMBER	10	4
DATA TYPE	TWO-DIGIT CODE - (19 = NANSEN CAST, 22 = NODC SELECTED DEPTHS FROM CTD/STD, 62 = ORIGINATOR SELECTED DEPTHS FROM CTD/STD)	14	2
BLANK	TWO BLANKS	16	2
TEN-DEGREE SQUARE	FOUR-DIGIT CODE - WMO TEN-DEGREE SQUARE NUMBER	18	4
ONE-DEGREE SQUARE	TWO-DIGIT CODE - WMO ONE-DEGREE SQUARE NUMBER	22	2
TWO-DEGREE SQUARE	TWO-DIGIT CODE - WMO TWO-DEGREE SQUARE NUMBER	24	2
FIVE-DEGREE SQUARE	ONE-DIGIT CODE - WMO FIVE-DEGREE SQUARE NUMBER	26	1
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	27	1
LATITUDE	DDMMX (DEGREES, MINUTES TO TENTHS)	28	5
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	33	1
LONGITUDE	DDDMMX (DEGREES, MINUTES TO TENTHS)	34	6
QUARTER OF ONE-DEGREE SQUARE	ONE-DIGIT CODE - WMO 'QUARTER DEGREE' SQUARE NUMBER (= 1, 2, 3, OR 4; 9 = NOT RECORDED)	40	1
DATE (GMT)	YYMMDD - YEAR, MONTH, DAY	41	6
TIME (GMT)	XXX (HOURS TO TENTHS)	47	3
PLATFORM	TWO-CHARACTER NODC PLATFORM CODE	50	2
BLANK	FOUR BLANKS	52	4
BOTTOM DEPTH	XXXXX (WHOLE METERS)	56	5
EFFECTIVE DEPTH	XXXX - DEPTH OF DEEPEST COMPUTED SOUND SPEED, I.E., DEEPEST OBSERVED DEPTH AT WHICH BOTH TEMPERATURE AND SALINITY ARE REPORTED WITH NO QUALITY FLAGS (WHOLE METERS)	61	4
CAST DURATION	XXX - TOTAL ELAPSED TIME FOR CTD/STD CAST (HOURS TO TENTHS)	65	3
CAST DIRECTION	ONE-CHARACTER CODE - (U = UP, D = DOWN, A = AVERAGE OF UP AND DOWN CASTS, OR BLANK)	68	1
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY. 'S' = SALINITY, BLANK = NOT SPECIFIED)	69	1
DATA USE CODE	ONE-DIGIT CODE - NODC INTERNAL USE ONLY	70	1
MINIMUM DEPTH	ONE-DIGIT CODE - FIRST OBSERVED DEPTH WITH VALID DEPTH, TEMPERATURE, AND SALINITY (WHOLE METERS)	71	4
MAXIMUM DEPTH	XXXX - DEEPEST OBSERVED DEPTH WITH ANY VALID PARAMETER (WHOLE METERS)	75	4
NEXT RECORD TYPE	ALWAYS '2'	79	1
PRESENT RECORD TYPE	ALWAYS '1'	80	1

MASTER RECORD 2

DEPTH DIFFERENCE	XXXX - BOTTOM DEPTH MINUS MAXIMUM DEPTH (WHOLE METERS)	1	4
SAMPLE INTERVAL	XX - VERTICAL SAMPLE SPACING (EFFECTIVE DEPTH DIVIDED BY NUMBER OF VALID OBSERVED DEPTH LEVELS, TO NEAREST TENS OF METERS, E.G., 01 = 10 METERS)	5	2
PERCENT SALINITY OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH SALINITY REPORTED (0 = 1 TO 9 PERCENT, ... , 9 = 90 TO 99 PERCENT, - = PARAMETER NOT RECORDED)	7	1
PERCENT OXYGEN OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH DISSOLVED OXYGEN REPORTED	8	1
PERCENT PHOSPHATE OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH PHOSPHATE REPORTED	9	1
PERCENT TOTAL PHOSPHORUS OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH TOTAL PHOSPHORUS REPORTED	10	1
PERCENT SILICATE OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH SILICATE REPORTED	11	1
PERCENT NITRITE OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH NITRITE REPORTED	12	1
PERCENT NITRATE OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH NITRATE REPORTED	13	1
PERCENT PH OBSERVED	ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH PH REPORTED	14	1
ORIGINATOR'S CRUISE ID	THREE CHARACTERS - ORIGINATOR'S CRUISE IDENTIFIER	15	3
ORIGINATOR'S STATION ID	NINE CHARACTERS - ORIGINATOR'S STATION IDENTIFIER	18	9
WATER COLOR	TWO-DIGIT CODE - FOREL-ULE SCALE (00-21)	27	2
WATER TRANSPARENCY	XX - SECCHI DISK DEPTH (WHOLE METERS)	29	2
WAVE DIRECTION	TWO-DIGIT CODE - USE NODC CODE 0110 (WMO 0885)	31	2
WAVE HEIGHT	ONE-DIGIT CODE - USE NODC CODE 0104 (WMO 1555) (BLANK IF SEA STATE PRESENT)	33	1
SEA STATE	ONE-DIGIT CODE - USE NODC CODE 0109 (WMO 3700) (BLANK IF WAVE HEIGHT PRESENT)	34	1
WIND FORCE	TWO-DIGIT CODE - BEAUFORT SCALE - USE NODC CODE 0052 (BLANK IF WIND SPEED PRESENT)	35	2
FILE UPDATE CODE	ONE-DIGIT CODE - NODC INTERNAL USE ONLY	37	1
WAVE PERIOD	ONE-DIGIT CODE - USE NODC CODE 0378 (WMO 3155) (BLANK IF SEA STATE PRESENT)	38	1
WIND DIRECTION	TWO-DIGIT CODE - USE NODC CODE 0110 (WMO 0877)	39	2
WIND SPEED	XX - (KNOTS; BLANK IF WIND FORCE PRESENT)	41	2
BAROMETRIC PRESSURE	XXXXX (MILLIBARS TO TENTHS)	43	5
DRY BULB TEMPERATURE	XXXX (DEG C IN WHOLE DEGREES OR TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)	48	4
DRY BULB TEMPERATURE PRECISION	ONE-DIGIT CODE - (0 = WHOLE DEGREES, 1 = TENTHS OF DEGREE, 9 = BLANK)	52	1
WET BULB TEMPERATURE	XXXX (DEG C IN WHOLE DEGREES OR TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)	53	4
WET BULB TEMPERATURE PRECISION	ONE-DIGIT CODE - (0 = WHOLE DEGREES, 1 = TENTHS OF DEGREE, 9 = BLANK)	57	1
WEATHER	ONE- OR TWO-DIGIT CODE - USE NODC CODE 0108 (WMO 4501) OR NODC CODE 0159 (WMO 4677)	58	2
CLOUD TYPE	ONE-DIGIT CODE - USE NODC CODE 0053 (WMO 0500)	60	1
CLOUD AMOUNT	ONE-DIGIT CODE - USE NODC CODE 0105 (WMO 2700)	61	1
COUNT OF OBSERVED DEPTHS	XXX - NUMBER OF OBSERVED DEPTH LEVELS	62	3
COUNT OF STANDARD DEPTHS	XX - NUMBER OF STANDARD DEPTH LEVELS (MAXIMUM = 34)	65	2
COUNT OF DETAIL DEPTHS	XXX - NUMBER OF DETAIL DEPTHS (TOTAL OF OBSERVED DEPTHS PLUS STANDARD DEPTHS)	67	3
BLANK	NINE BLANKS	70	9
NEXT RECORD INDICATOR	EITHER '3', '4', '6', OR '7'	79	1
PRESENT RECORD INDICATOR	ALWAYS '2'	80	1

OBSERVED DEPTH DETAIL RECORD

OBSERVED DEPTH	XXXXX (WHOLE METERS)	1	5
DEPTH QUALITY INDICATOR	ONE-DIGIT CODE - USE NODC CODE 0608	6	1
THERMOMETRIC DEPTH FLAG	ONE-CHARACTER CODE - 'T' INDICATES DEPTH IS THERMO-METRICALLY DETERMINED	7	1
TEMPERATURE	XXXXX (DEG C; NEGATIVE VALUE PRECEDED BY MINUS SIGN)	8	5
TEMPERATURE PRECISION	ONE-DIGIT CODE - (1, 2, 3 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	13	1
TEMPERATURE QUALITY INDICATOR	ONE-DIGIT CODE - USE NODC CODE 0608	14	1
SALINITY	XXXXX (PARTS PER THOUSAND)	15	5
SALINITY PRECISION	ONE-DIGIT CODE - (1, 2, 3 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	20	1

SALINITY QUALITY INDICATOR	ONE-DIGIT CODE - USE NODC CODE 0608	21	1
SIGMA-T	XXXX (DIMENSIONLESS TO HUNDREDTHS)	22	4
SIGMA-T QUALITY INDICATOR	ONE-DIGIT CODE - (8 = SIGMA-T QUESTIONABLE; 9 = BLANK)	26	1
SOUND SPEED	XXXXX (METERS/SECOND TO TENTHS)	27	5
SOUND SPEED PRECISION	ONE-DIGIT CODE - (1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	32	1
OXYGEN	XXXX (MILLILITERS/LITER)	33	4
OXYGEN PRECISION	ONE-DIGIT CODE - (1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	37	1
OXYGEN QUALITY INDICATOR	ONE-DIGIT CODE - USE NODC CODE 0608	38	1
DATA RANGE CHECK FLAGS	ONE-DIGIT CODE - FOR FOLLOWING SIX CONDITIONS, 0 = DATA IN RANGE, 1 = DATA OUT OF RANGE:		
	PHOSPHATE > 4.00	39	1
	TOTAL PHOSPHORUS < PHOSPHATE	40	1
	SILICATE > 300.00	41	1
	NITRITE > 4.0	42	1
	NITRATE > 45.0	43	1
	PH < 7.40 OR > 8.50	44	1
CAST START TIME OR MESSENGER RELEASE TIME	XXX (HOURS TO TENTHS)	45	3
CAST NUMBER	X (BLANK, OR 1-9)	48	1
INORGANIC PHOSPHATE	XXXX (MICROGRAM-ATOMS/LITER)	49	4
INORGANIC PHOSPHATE PRECISION	ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.99; 9 = BLANK)	53	1
TOTAL PHOSPHORUS	XXXX (MICROGRAM-ATOMS/LITER)	54	4
TOTAL PHOSPHORUS PRECISION	ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.99; 9 = BLANK)	58	1
SILICATE	XXXX (MICROGRAM-ATOMS/LITER)	59	4
SILICATE PRECISION	ONE-DIGIT CODE - (0, 1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 999.9; 9 = BLANK)	63	1
NITRITE	XXX (MICROGRAM-ATOMS/LITER)	64	3
NITRITE PRECISION	ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 9.99; 9 = BLANK)	67	1
NITRATE	XXX (MICROGRAM-ATOMS/LITER)	68	3
NITRATE PRECISION	ONE-DIGIT CODE - (0, 1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.9; 9 = BLANK)	71	1
PH	XXX (DIMENSIONLESS TO HUNDREDTHS)	72	3
PH PRECISION	ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT)	75	1
BLANK	TWO BLANKS	76	2
DENSITY INVERSION FLAG	ONE-DIGIT CODE - (1 = SIGMA-T DECREASE GREATER THAN 0.02; OTHERWISE = 0)	78	1
NEXT RECORD TYPE	EITHER '1', '3', '4', '6', OR '7'	79	1
PRESENT RECORD TYPE	'3' OR '4' (3 = OBSERVED DEPTH DATA FROM FIELD MEASUREMENTS; 4 = INTERPOLATED VALUES USED AS OBSERVED VALUES FOR COMPUTATIONAL PURPOSES WHEN ORIGINAL OBSERVED VALUES MISSING)	80	1

STANDARD DEPTH DETAIL RECORD

DEPTH	XXXXX (WHOLE METERS)	1	5
BLANK	TWO BLANKS	6	2
TEMPERATURE	XXXX (DEG C)	8	4
BLANK	ONE BLANK	12	1
TEMPERATURE PRECISION	ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	13	1
BLANK	ONE BLANK	14	1
SALINITY	XXXX (PARTS PER THOUSAND)	15	4
BLANK	ONE BLANK	19	1
SALINITY PRECISION	ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	20	1
BLANK	ONE BLANK	21	1
SIGMA-T	XXXX (DIMENSIONLESS TO HUNDREDTHS)	22	4
SIGMA-T INDICATOR	ONE-DIGIT CODE - (9 = BLANK)	26	1
SOUND SPEED	XXXXX (METERS/SECOND)	27	5
SOUND SPEED PRECISION	ONE-DIGIT CODE - (1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	32	1
OXYGEN	XXXX (MILLILITERS/LITER)	33	4
OXYGEN PRECISION	ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	37	1

BLANK	ONE BLANK	38	1
DYNAMIC DEPTH ANOMALY	XXXXX (DYNAMIC METERS)	39	5
DYNAMIC DEPTH ANOMALY PRECISION	ONE-DIGIT CODE -- (3=NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)	44	1
BLANK	THIRTY-THREE BLANKS	45	33
DENSITY INVERSION FLAG	ONE-DIGIT CODE - (1 = SIGMA-T DECREASE GREATER THAN 0.02; OTHERWISE = 0)	78	1
NEXT RECORD TYPE	EITHER '3', '4', '6', OR '7'	79	1
PRESENT RECORD TYPE	'6' OR '7' (6 = DATA INTERPOLATED BY NODC TO NODC STANDARD DEPTH; 7 = DATA INTERPOLATED BY ORIGINATOR TO NODC OR OTHER STANDARD DEPTH)	80	1

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0052	WIND FORCE (BEAUFORT)
0053	CLOUD TYPE (WMO 0500)
0104	WAVE HEIGHT (WMO 1555)
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0109	SEA STATE (WMO 3700)
0110	WIND-WAVE DIRECTION (WMO 0885 OR 0877)
0159	WEATHER (WMO 4677)
0378	WAVE PERIOD (WMO 3155)
0608	QUALITY INDICATOR
--	NODC COUNTRY CODE
--	NODC PLATFORM (SHIP) CODE

4.1.2 Low-resolution CTD/STD Data (C022)

Geographic area: Worldwide oceans

Time period: 1969 - present

This file contains "compressed" versions of physical-chemical oceanographic data collected using electronic CTD (conductivity-temperature-depth) and STD (salinity-temperature-depth) recorders. Following processing of original high-resolution CTD/STD data (Section 4.1.3) NODC creates a low-resolution version of each cast by picking off data values at selected depth levels. Data values may be recorded at up to 106 depth levels including the 34 standard depth levels used in the Oceanographic Station Data File (see Section 15.3, Appendix C, for details of the depth level scheme). The compressed data are stored in the same format as the Oceanographic Station Data Data File, which contains mainly Nansen cast data (Section 4.1.1). The low-resolution CTD/STD data can therefore be used to supplement Nansen cast data in studies of gross ocean structure and features where the finer depth spacing of the original records is not needed. Cruise information, position, date and time are reported for each station. The principal measured parameters reported at each depth level are temperature and salinity, although dissolved oxygen may also be included. Meteorological conditions at the time of the cast (e.g., air temperature and pressure, wind, waves) may also be reported, as well as auxiliary data such as water color (Forel-Ule scale), water transparency (Secchi disk depth), and depth to bottom. Values of density (sigma-t), sound velocity, and dynamic depth anomaly are computed from measured parameters. This file is maintained in both cruise file and geofile versions.

(For data inventory plot, see Section 4.1.3)

File Structure -

Same as Oceanographic Station Data File (see Section 4.1.1).

File Format -

Same as Oceanographic Station Data File (see Section 4.1.1).

4.1.3 High-resolution CTD/STD Data (F022)

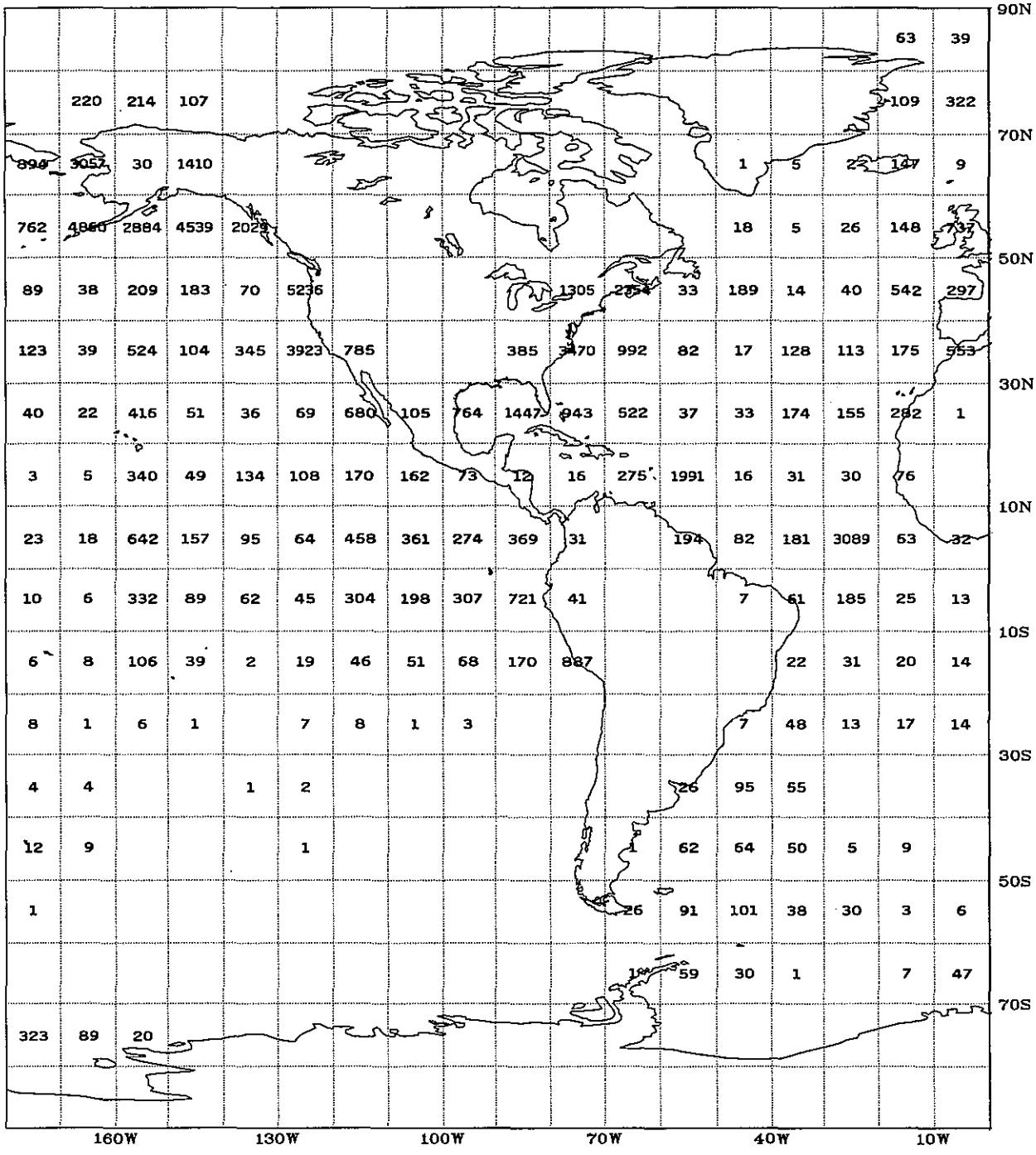
Geographic area: Worldwide oceans

Time period: 1969 - present

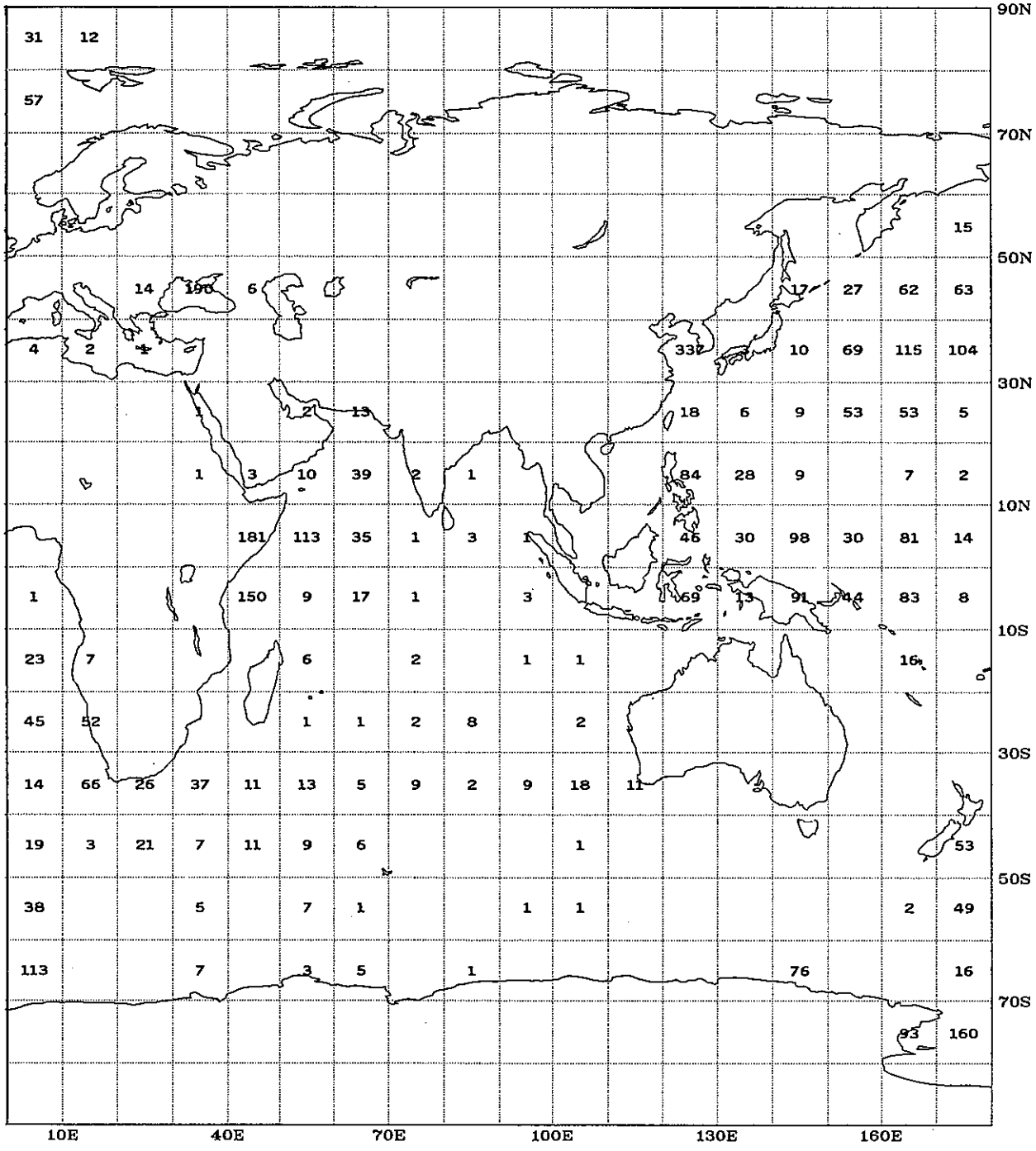
This file contains high-resolution data collected using CTD (conductivity-temperature-depth) and STD (salinity-temperature-depth) instruments. As they are lowered and raised in the oceans, these electronic devices provide nearly continuous profiles of temperature, salinity, and other parameters. Data values may be subject to averaging or filtering or obtained by interpolation and may be reported at pressure intervals as fine as 1 decibar. Cruise and instrument information, position, date, time, and sampling interval are reported for each station. Environmental data at the time of the cast (meteorological and sea surface conditions) may also be reported. The data record comprises values of temperature, salinity or conductivity, density (computed sigma-t), and possibly dissolved oxygen or transmissivity at specified depth or pressure levels. Data may be reported at either equally or unequally spaced depth or pressure intervals. A text record is available for comments.

During processing of these data, a "compressed' or low-resolution version of each cast is created by picking off data values at selected depth levels. The low-resolution CTD/STD records are stored in a separate data file (see Section 4.1.2) in the same format as Oceanographic Station (Nansen cast) data. The compressed data can be used like Nansen data in studies of gross ocean structure and features where the finer depth resolution of the original data records is not required.

High-resolution CTD/STD Data (F022)



High-resolution CTD/STD Data (F022)



File Structure -

Eight 120-character records: (1) Text Record, (2) Master Record, (3) Detail Record 1, (4) Detail Record 2, (5) Detail Record 3, (6) Detail Record 4, (7) Detail Record 5, and (8) Detail Record 6. This file is sorted by station number (cast number), record type, and sequence number.

File Format -

High-resolution CTD/STD Data (File 022)

PARAMETER	DESCRIPTION	SC	FL
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
CAST NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED ON RECORD TYPES 2,3 AND 4	11	5
TEXT	100-CHARACTER FIELD - USED FOR COMMENTS OR PERTINENT INFORMATION	16	100
SEQUENCE NUMBER	XXXXX - USED FOR SORTING TEXT RECORDS	116	5
MASTER RECORD			
NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
LATITUDE	DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
CRUISE IDENTIFICATION	TEN-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	31	10
NUMBER OF SCANS	XXXXX - USED TO INDICATE NUMBER OF SCANS PER STATION (FIVE/RECORD)	41	5
DATE (GMT)	YYMMDD	46	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	52	4
SAMPLE INTERVAL INDICATOR	ONE-DIGIT CODE - USE NODC CODE 0216	56	1
SAMPLE INTERVAL	XXX - WHEN INDICATOR CODE=1 (EQUAL SPACED DEPTHS) - (METERS TO TENTHS)	57	3
BAROMETRIC PRESSURE	XXXXX (MILLIBARS TO TENTHS)	60	5
WET BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	65	4
DRY BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	69	4
WIND DIRECTION	XX - TWO-DIGIT CODE - DIRECTION FROM - USE NODC CODE 0110 (WMO 0885/0887)	73	2
WIND SPEED	XX (WHOLE KNOTS)	75	2
WEATHER	ONE-DIGIT CODE - USE NODC CODE 0108 (WMO 4501)	77	1
SEA STATE	ONE-DIGIT CODE - USE NODC CODE 0109 (WMO 3700)	78	1
VISIBILITY	ONE-DIGIT CODE - USE NODC CODE 0157 (WMO 4300)	79	1
CLOUD TYPE	ONE-DIGIT CODE - USE NODC CODE 0053 (WMO 0500)	80	1
CLOUD AMOUNT	ONE-DIGIT CODE - USE NODC CODE 0105 (WMO 2700)	81	1
INSTRUMENT INFORMATION	TWENTY-CHARACTER FIELD FOR TYPE OF INSTRUMENT, SERIAL NUMBER, ETC	82	20
LOCATION NAME	SIX-CHARACTER NAME DETERMINED BY THE ORIGINATOR	102	6
DEPTH TO BOTTOM	XXXXX (WHOLE METERS)	108	5
MAXIMUM DEPTH OF CAST	XXXX (WHOLE METERS)	113	4
SALINITY METHOD	ONE CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	117	1
CAST DIRECTION	ONE-CHARACTER CODE - USE NODC CODE 0508	118	1
BLANKS		119	2

DETAIL RECORD 1

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
DEPTH	XXXXX (METERS TO TENTHS)	16	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	21	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	26	5
SIGMA-T	XXXX (TO HUNDREDTHS)	31	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA -USE NODC CODE 0080	35	1
DEPTH	XXXXX (METERS TO TENTHS)	36	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	41	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	46	5
SIGMA-T	XXXX (TO HUNDREDTHS)	51	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	55	1
DEPTH	XXXXX (METERS TO TENTHS)	56	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	61	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	66	5
SIGMA-T	XXXX (TO HUNDREDTHS)	71	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	75	1
DEPTH	XXXXX (METERS TO TENTHS)	76	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	81	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	86	5
SIGMA-T	XXXX (TO HUNDREDTHS)	91	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	95	1
DEPTH	XXXXX (METERS TO TENTHS)	96	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	101	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	106	5
SIGMA-T	XXXX (TO HUNDREDTHS)	111	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

DETAIL RECORD 2

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
DEPTH	XXXXX (METERS TO TENTHS)	16	5
DISSOLVED OXYGEN	XXXXX (ML/L TO THOUSANDTHS)	21	5
TRANSMISSIVITY	XXXXX (PERCENT TO THOUSANDTHS)	26	5
BLANKS		31	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	35	1
DEPTH	XXXXX (METERS TO TENTHS)	36	5
DISSOLVED OXYGEN	XXXXX (ML/L TO THOUSANDTHS)	41	5
TRANSMISSIVITY	XXXXX (PERCENT TO THOUSANDTHS)	46	5
BLANKS		51	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	55	1
DEPTH	XXXXX (METERS TO TENTHS)	56	5
DISSOLVED OXYGEN	XXXXX (ML/L TO THOUSANDTHS)	61	5
TRANSMISSIVITY	XXXXX (PERCENT TO THOUSANDTHS)	66	5
BLANKS		71	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	75	1
DEPTH	XXXXX (METERS TO TENTHS)	76	5

DISSOLVED OXYGEN	XXXXX (ML/L TO THOUSANDTHS)	81	5
TRANSMISSIVITY	XXXXX (PERCENT TO THOUSANDTHS)	86	5
BLANKS		91	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	95	1
DEPTH	XXXXX (METERS TO TENTHS)	96	5
DISSOLVED OXYGEN	XXXXX (ML/L TO THOUSANDTHS)	101	5
TRANSMISSIVITY	XXXXX (PERCENT TO THOUSANDTHS)	106	5
BLANKS		111	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

DETAIL RECORD 3

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
DEPTH	XXXXX (METERS TO TENTHS)	16	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	21	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	26	5
BLANKS		31	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	35	1
DEPTH	XXXXX (METERS TO TENTHS)	36	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	41	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	46	5
BLANKS		51	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	55	1
DEPTH	XXXXX (METERS TO TENTHS)	56	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	61	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	66	5
BLANKS		71	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	75	1
DEPTH	XXXXX (METERS TO TENTHS)	76	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	81	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	86	5
BLANKS		91	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	95	1
DEPTH	XXXXX (METERS TO TENTHS)	96	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	101	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	106	5
BLANKS		111	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

DETAIL RECORD 4

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '6'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	16	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	21	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	26	5
SIGMA-T	XXXX (TO HUNDREDTHS)	31	4

SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	35	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	36	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	41	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	46	5
SIGMA-T	XXXX (TO HUNDREDTHS)	51	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	55	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	56	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	61	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	66	5
SIGMA-T	XXXX (TO HUNDREDTHS)	71	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	75	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	76	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	81	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	86	5
SIGMA-T	XXXX (TO HUNDREDTHS)	91	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	95	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	96	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTH	101	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	106	5
SIGMA-T	XXXX (TO HUNDREDTHS)	111	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

DETAIL RECORD 5

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '7'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	16	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	21	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	26	5
BLANKS		31	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	35	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	36	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	41	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	46	5
BLANKS		51	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	55	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	56	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	61	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	66	5
BLANKS		71	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	75	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	76	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	81	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	86	5
BLANKS		91	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	95	1

PRESSURE	XXXXX (DECIBARS TO TENTHS)	96	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	101	5
CONDUCTIVITY	XXXXX (MMHO/CM TO THOUSANDTHS)	106	5
BLANKS		111	4
SCAN CONDITION	ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

DETAIL RECORD 6

NODC FILE NUMBER	ALWAYS '022'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '8'	10	1
CAST NUMBER	SEE RECORD '1'	11	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	16	5
TEMPERATURE	XXXXX (DEG C TO THOUSANDTHS)	21	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	26	5
DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	31	4
SCAN CONDITION CODE	ONE-CHARACTER CODE - USE NODC CODE 0080	35	1
TEMPERATURE	XXXXX (DEG C TO THOUSANDTHS)	36	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	41	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	46	5
DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	51	4
SCAN CONDITION CODE	ONE-CHARACTER CODE - USE NODC CODE 0080	55	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	56	5
TEMPERATURE	XXXXX (DEG C TO THOUSANDTHS)	61	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	66	5
DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	71	4
SCAN CONDITION CODE	ONE-CHARACTER CODE - USE NODC CODE 0080	75	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	76	5
TEMPERATURE	XXXXX (DEG C TO THOUSANDTHS)	81	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	86	5
DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	91	4
SCAN CONDITION CODE	ONE-CHARACTER CODE - USE NODC CODE 0080	95	1
PRESSURE	XXXXX (DECIBARS TO TENTHS)	96	5
TEMPERATURE	XXXXX (DEG C TO THOUSANDTHS)	101	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	106	5
DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	111	4
SCAN CONDITION CODE	ONE-CHARACTER CODE - USE NODC CODE 0080	115	1
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	116	5

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0053	CLOUD TYPE (WMO 0500)
0080	STD-SCAN CONDITION
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0109	SEA STATE (WMO 3700)
0110	WIND-WAVE DIRECTION (WMO 0885/0887)
0157	VISIBILITY (WMO 4300)
0216	SAMPLE INTERVAL

4.1.4 Bathythermograph (BT) Data

The following group of four related files contains temperature profile data (temperature versus depth) from the mechanical bathythermograph (MBT) and its successor instrument, the expendable bathythermograph (XBT). Although the NODC still receives some MBT data (in digital form) from foreign sources, most new data are from XBTs. XBT data are received in delayed mode as analog strip charts (that must be digitized), as digital data already derived from analog strip charts, and, increasingly, as digital data recorded directly on cassette tapes by newer XBT systems. NODC also receives BT data in near-real-time as telecommunicated (radio message) observations collected in support of the Integrated Global Ocean Services System (IGOSS). Because they vary in quality, the way in which they are reported to the NODC, and the depths at which they are recorded, the data are maintained in separate files. The data are all recorded in the same format, however, and may be merged if desired.

4.1.4.a Mechanical Bathythermograph Data (MBT)

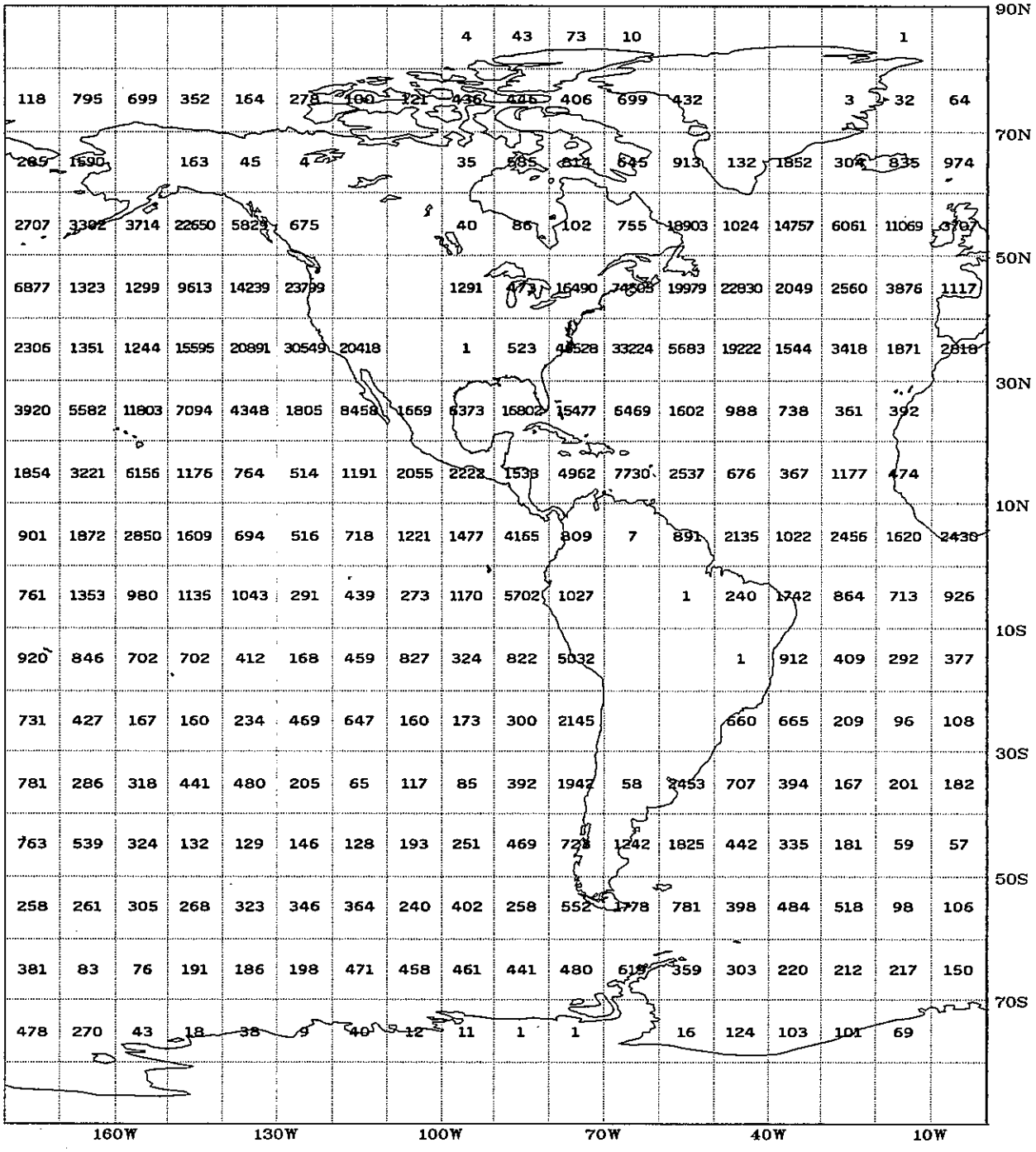
Geographic area: Worldwide oceans

Time period: 1941-1988

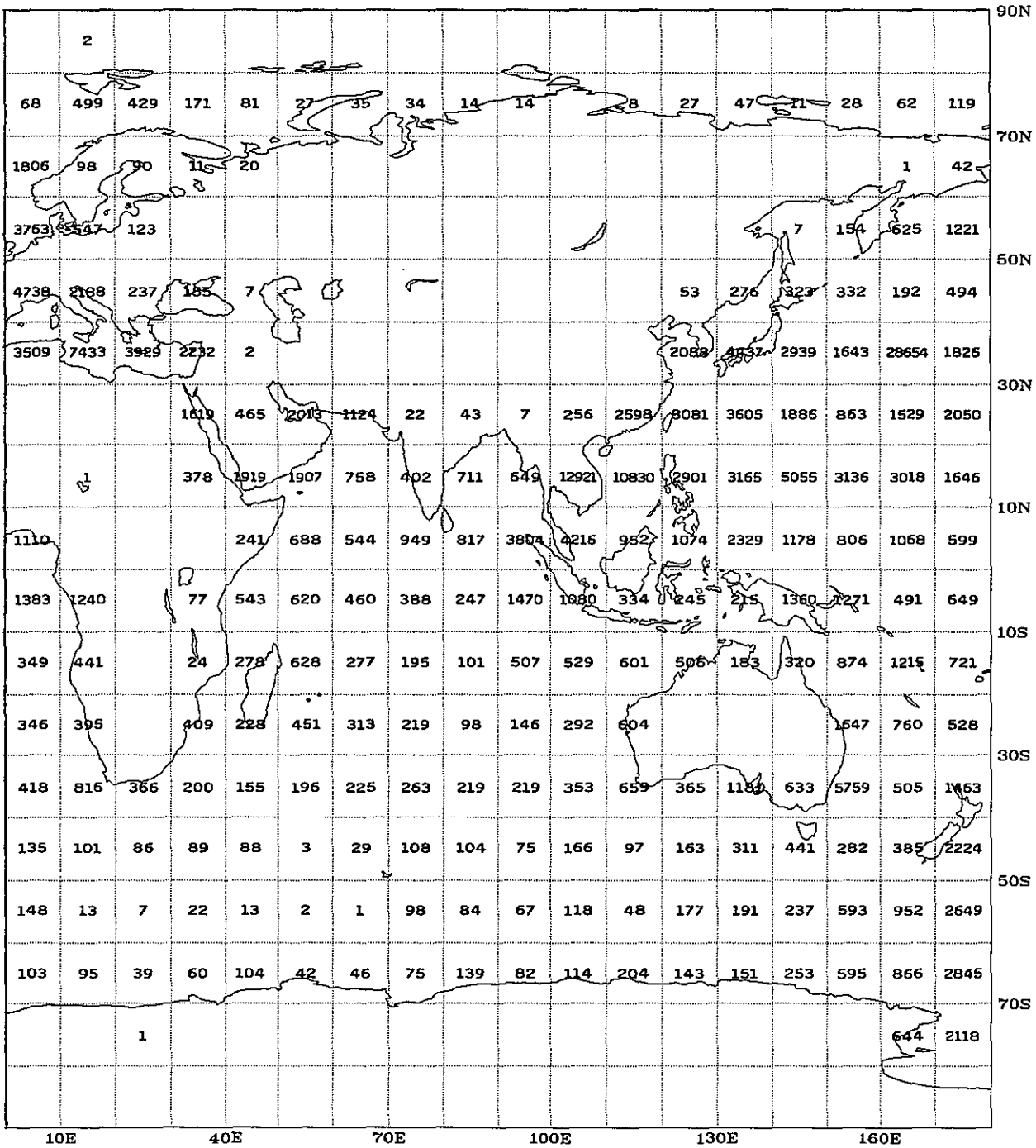
This file contains temperature-depth profile data obtained using the mechanical bathythermograph (MBT) instrument. The maximum depth of observations is approximately 285 m. Therefore, MBT data are useful only in studying the thermal structure of the upper layers of the ocean. Cruise information, position, date, and time are reported for each observation. The data record comprises pairs of temperature-depth values. Temperature data in this file are recorded at uniform 5 m depth intervals. The MBT Data File is maintained in both cruise file and geofile versions.

[**NOTE:** The mechanical bathythermograph instrument is now obsolete, having been superseded by the faster, easier-to-operate expendable bathythermograph. NODC no longer digitizes MBT data; however, it still accepts digitized MBT data for processing into this data file. The data were digitized from analog bathythermograph slides and their accompanying log sheets that provided reference information. Most of the data in NODC's MBT Data File were processed on contract by the Scripps Institution of Oceanography. The processing was performed via a semi-automatic digitizer that recorded digital output directly on magnetic tape.]

Mechanical Bathythermograph Data (MBT)



Mechanical Bathythermograph Data (MBT)



File Structure -

One variable-length record (maximum 2,540 characters).

File Format -

Bathythermograph Data (BT)

PARAMETER	DESCRIPTION	SC	FL
FILE ID	TWO-CHARACTER CODE - ('X '=XBT AT INFLECTION POINT DEPTHS; 'M '=MBT AT 5-METER DEPTHS; 'XS'=XBT AT ORIGINATOR DEPTHS; 'MS'=MBT AT ORIGINATOR DEPTHS)	1	2
AREA	ONE-DIGIT CODE - WMO QUADRANT (= 1, 3, 5, OR 7)	3	1
LATITUDE	DDMMX ((DEGREES, MINUTES TO TENTHS)	4	5
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	9	1
LATITUDE PRECISION	ONE-DIGIT CODE - USE NODC CODE 0606	10	1
LONGITUDE	DDDMMX (DEGREES, MINUTES TO TENTHS)	11	6
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	17	1
LONGTITUDE PRECISION	ONE-DIGIT CODE - USE NODC CODE 0606	18	1
DATE (GMT)	YYMMDD - YEAR, MONTH, DAY	19	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	25	4
TIME PRECISION	ONE-DIGIT CODE - USE NODC CODE 0607	29	1
BLANK	ONE BLANK	30	1
SUBMITTING COUNTRY	TWO-CHARACTER NODC COUNTRY CODE	31	2
BLANK	ONE BLANK	33	1
SUBMITTING INSTITUTION	TWO-CHARACTER NODC INSTITUTION CODE	34	2
CRUISE	XXXXX - NODC CRUISE NUMBER	36	5
CONSEC	XXXX - NODC CONSECUTIVE STATION NUMBER	41	4
DATA ORIGIN			
COUNTRY OF PLATFORM	TWO-CHARACTER COUNTRY CODE	45	2
INSTITUTION	TWO-CHARACTER INSTITUTION CODE	47	2
PLATFORM	TWO-CHARACTER PLATFORM CODE	49	2
OSV FLAG	ONE-CHARACTER CODE - INDICATES OCEAN STATION VESSEL (OCEAN WEATHER STATION) - USE NODC CODE 0610	51	1
DNP FLAG	ONE-CHARACTER CODE - INDICATES DECLARED NATIONAL PROGRAM STATUS - USE NODC CODE 0609	52	1
BLANK	TWO BLANKS	53	2
CRUISE	XXXXXXXX - ORIGINATOR'S CRUISE NUMBER	55	8
CONSEC	XXXX - ORIGINATOR'S CONSECUTIVE STATION NUMBER	63	4
XBT CALIBRATION DEPTH	XXX - DEPTH AT CALIBRATION TICK; UNITS (METERS, FEET) DEPEND ON PROBE TYPE	67	3
XBT CALIBRATION TEMPERATURE	XXX - TEMPERATURE AT CALIBRATION TICK; (DEG C TO TENTHS OR DEG F TO TENTHS, DEPENDING ON PROBE TYPE)	70	3
INSTRUMENT TYPE	ONE-DIGIT CODE - (1 = XBT, 2 = HXBT, 3 = SXBT, 4 = AXBT, BLANK = MBT)	73	1
MBT GRID OR XBT PROBE TYPE	ONE-CHARACTER CODE - USE NODC CODE 0616 OR CODE 0611	74	1
XBT BOTTOM FLAG	ONE-CHARACTER CODE - INDICATES WHETHER XBT PROBE HIT BOTTOM (B = YES, BLANK = NO - NODC CODE 0617)	75	1
XBT DIGITIZATION METHOD	TWO-DIGIT CODE - USE NODC CODE 0612	76	2
XBT DIGITIZATION INTERVAL	TWO-DIGIT CODE - USE NODC CODE 0613	78	2
XBT DATA TREATMENT AND STORAGE	TWO-DIGIT CODE - USE NODC CODE 0614	80	2
BOTTOM DEPTH	XXXX (WHOLE METERS)	82	4
MBT CORRECTION DEPTH	XXX (WHOLE METERS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)	86	3
MBT TEMPERATURE CORRECTION	XXX (DEG C TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)	89	3
MBT REFERENCE TEMPERATURE TYPE	ONE-DIGIT CODE - USE NODC CODE 0615	92	1
MBT REFERENCE TEMPERATURE	XXX (DEG C TO TENTHS)	93	3
COUNT	XXXX - NUMBER OF DEPTH -TEMPERATURE PAIRS (MAXIMUM = 305)	96	4
BLANK	ONE BLANK	100	1

DEPTH*	XXXX (WHOLE METERS)	101	4
TEMPERATURE*	XXXX (DEG C TO HUNDREDTHS)	105	4

*DEPTH-TEMPERATURE PAIRS (8 CHARACTERS) REPEATED AS MANY TIMES AS INDICATED BY 'COUNT' FIELD UP TO MAXIMUM OF 305 PAIRS (2440 CHARACTERS); MAXIMUM RECORD LENGTH THEREFORE EQUALS 2440 + 100 (HEADER INFORMATION) = 2540 CHARACTERS.

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0606	POSITION PRECISION
0607	TIME PRECISION
0609	DECLARED NATIONAL PROGRAM
0610	OCEAN WEATHER STATION
0611	XBT PROBE TYPE
0612	DIGITIZATION METHOD
0613	DATA INTERVAL (XBT)
0614	DATA TREATMENT AND STORAGE
0615	BT REFERENCE TEMPERATURE
0616	UBT FILE ID
0617	BOTTOM HIT
--	NODC COUNTRY CODE
--	NODC PLATFORM (SHIP) CODE
--	NODC INSTITUTION CODE

4.1.b Expendable Bathythermograph Data (XBT)

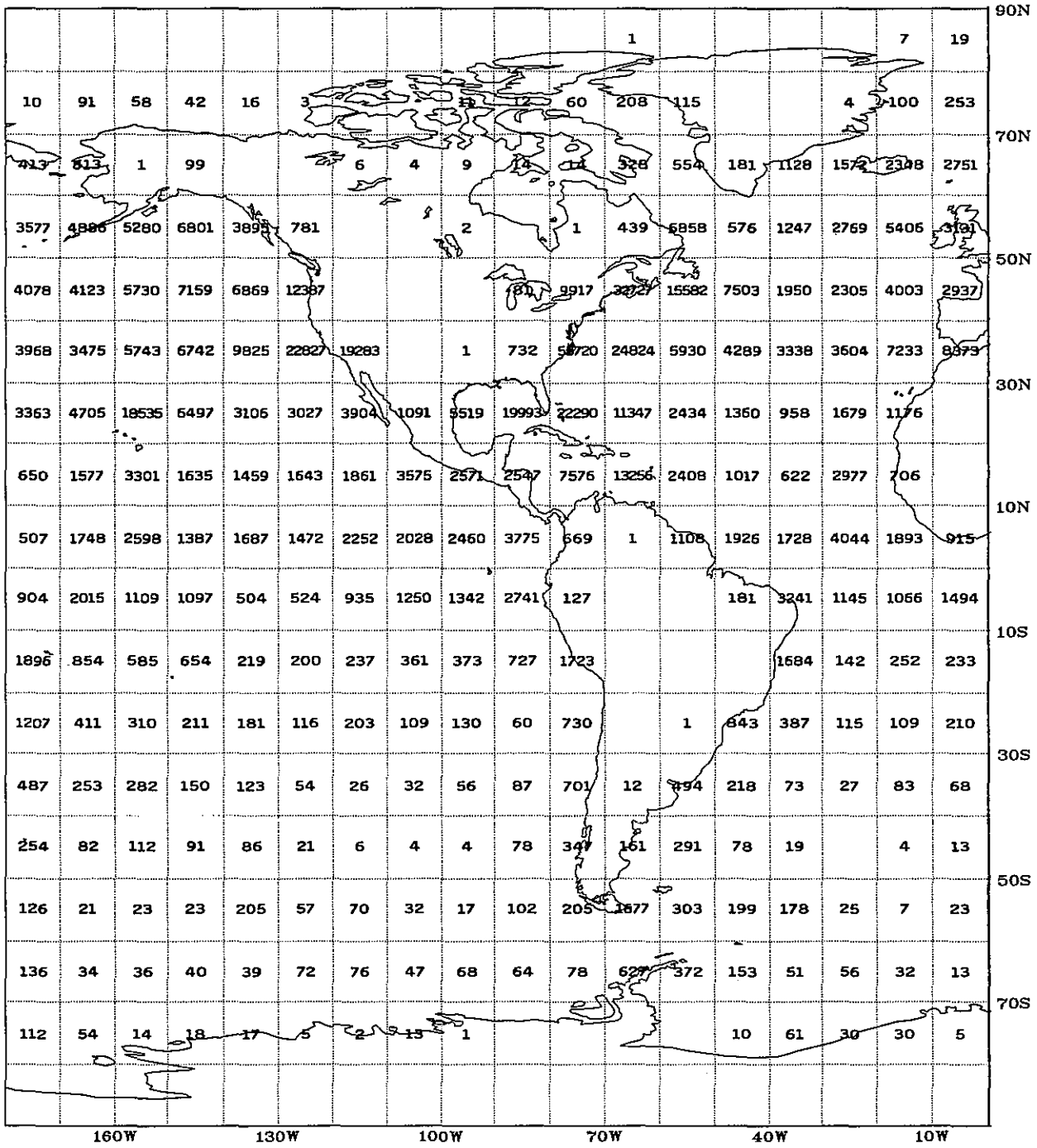
Geographic area: Worldwide oceans

Time period: 1965 - present

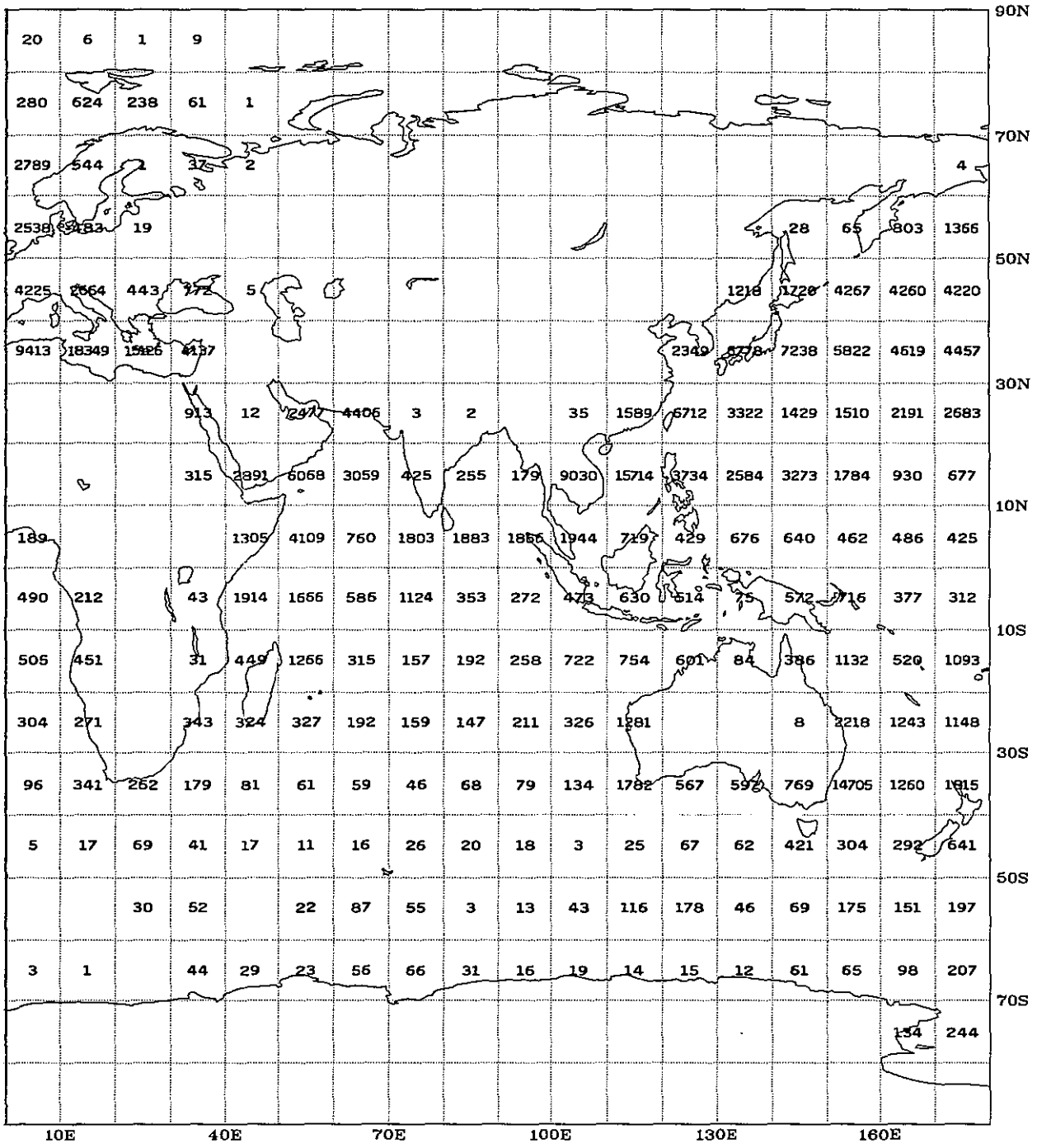
This file contains temperature-depth profile data obtained using expendable bathythermograph (XBT) instruments and submitted to NODC in analog (strip chart) or digital form. Standard XBTs normally obtain profiles to depths of up to 760 m. With special instruments, measurements can be obtained to 1830 m. Cruise information, position, date, and time are reported for each observation. The data record comprises pairs of temperature-depth values. Unlike the MBT Data File, in which temperatures are recorded at uniform 5 m intervals, the XBT Data File contains temperature values at non-uniform depths. These depths are at the minimum number of points ("inflection points") required to record the temperature curve to an acceptable degree of accuracy. On output, however, the user may request temperature values either at inflection points or interpolated to uniform depth increments. The XBT Data File is maintained in both cruise file and geofile versions.

[**NOTE:** Although new XBT instruments can provide digital output directly on magnetic tape, NODC still receives paper strip charts with analog XBT traces that must be digitized. Only part of the XBT data that it archives is digitized by NODC itself. Some data are also digitized by commercial contractors.]

Expendable Bathythermograph Data (XBT)



Expendable Bathythermograph Data (XBT)



File Structure -

Same as MBT Data File (see Section 4.1.4.a).

File Format -

Same as MBT Data File (see Section 4.1.4.a).

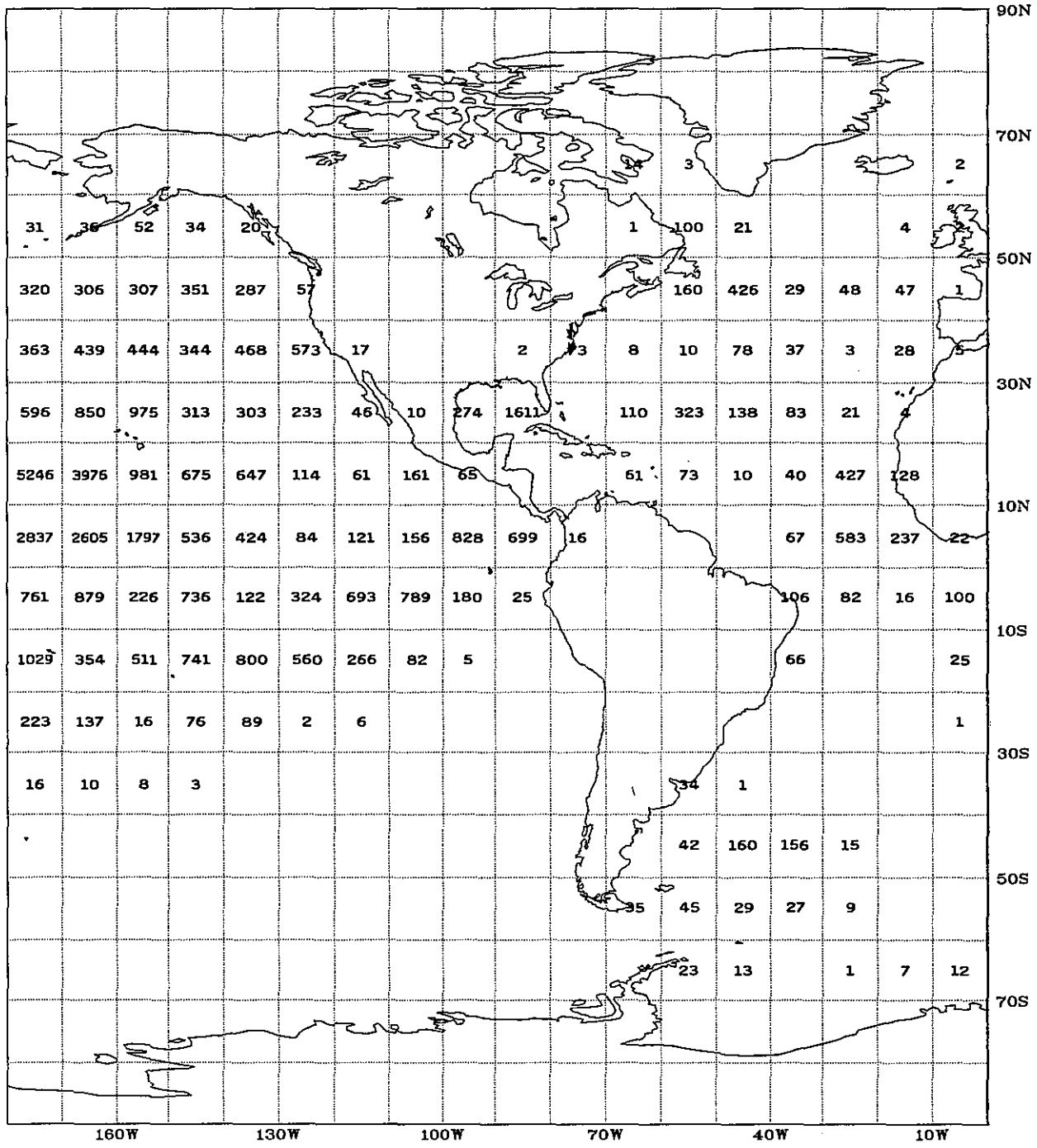
4.1.4.c Selected Depth Bathythermograph Data (SBT)

Geographic area: Worldwide oceans

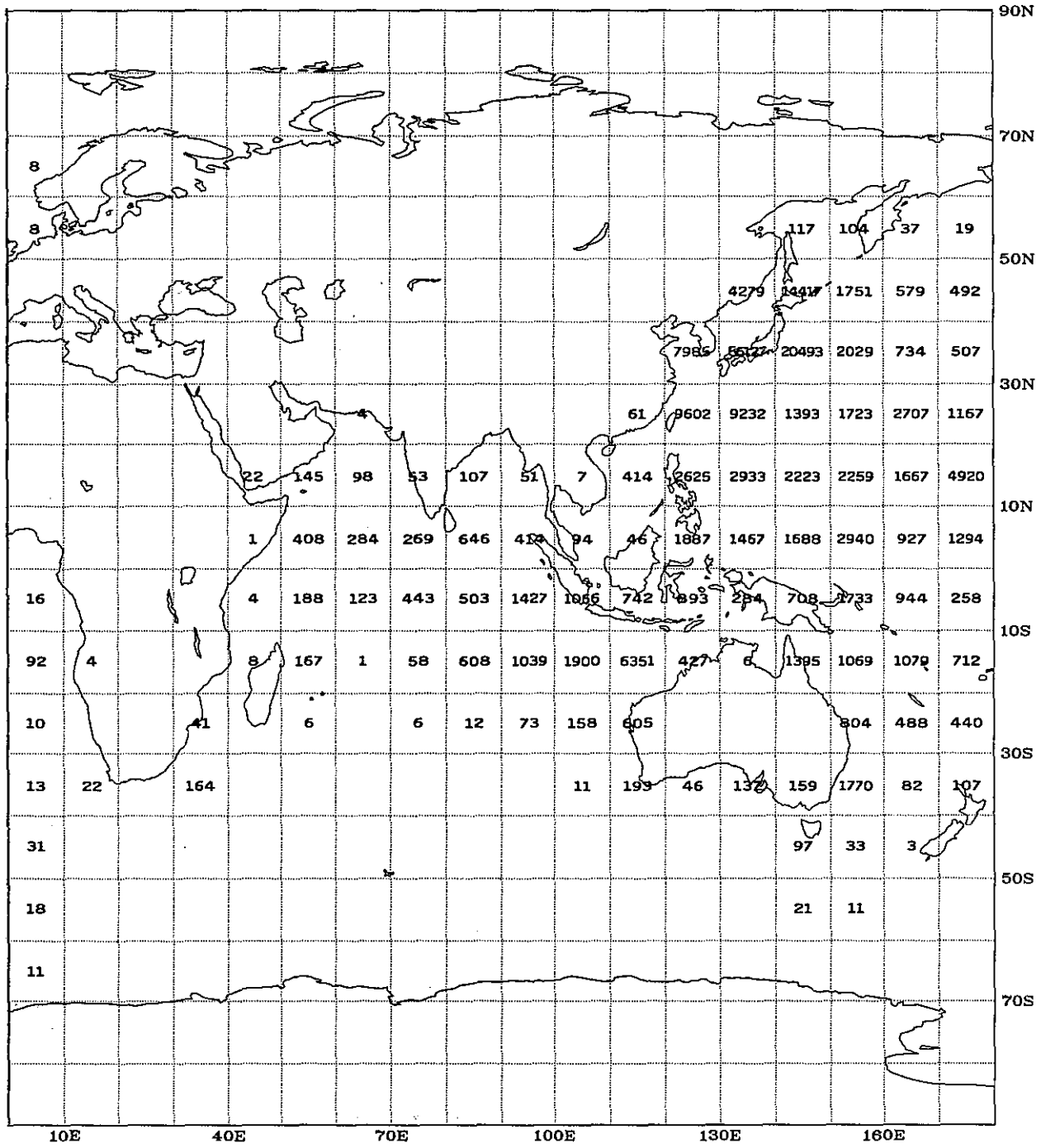
Time period: 1955 - present

This file contains bathythermograph (principally XBT) data submitted to NODC at originator-defined selected depth levels. Because these data are recorded at depths other than the uniform 5 m intervals used by NODC in its MBT Data File or the inflections points used by NODC in its XBT Data File, they are stored in a separate file. Most of these data are of foreign origin, a large percentage from Japan and Australia.

Selected Depth Bathythermograph Data (SBT)



Selected Depth Bathythermograph Data (SBT)



File Structure -

Same as MBT Data File (see Section 4.1.4.a).

File Format -

Same as MBT Data File (see Section 4.1.4.a).

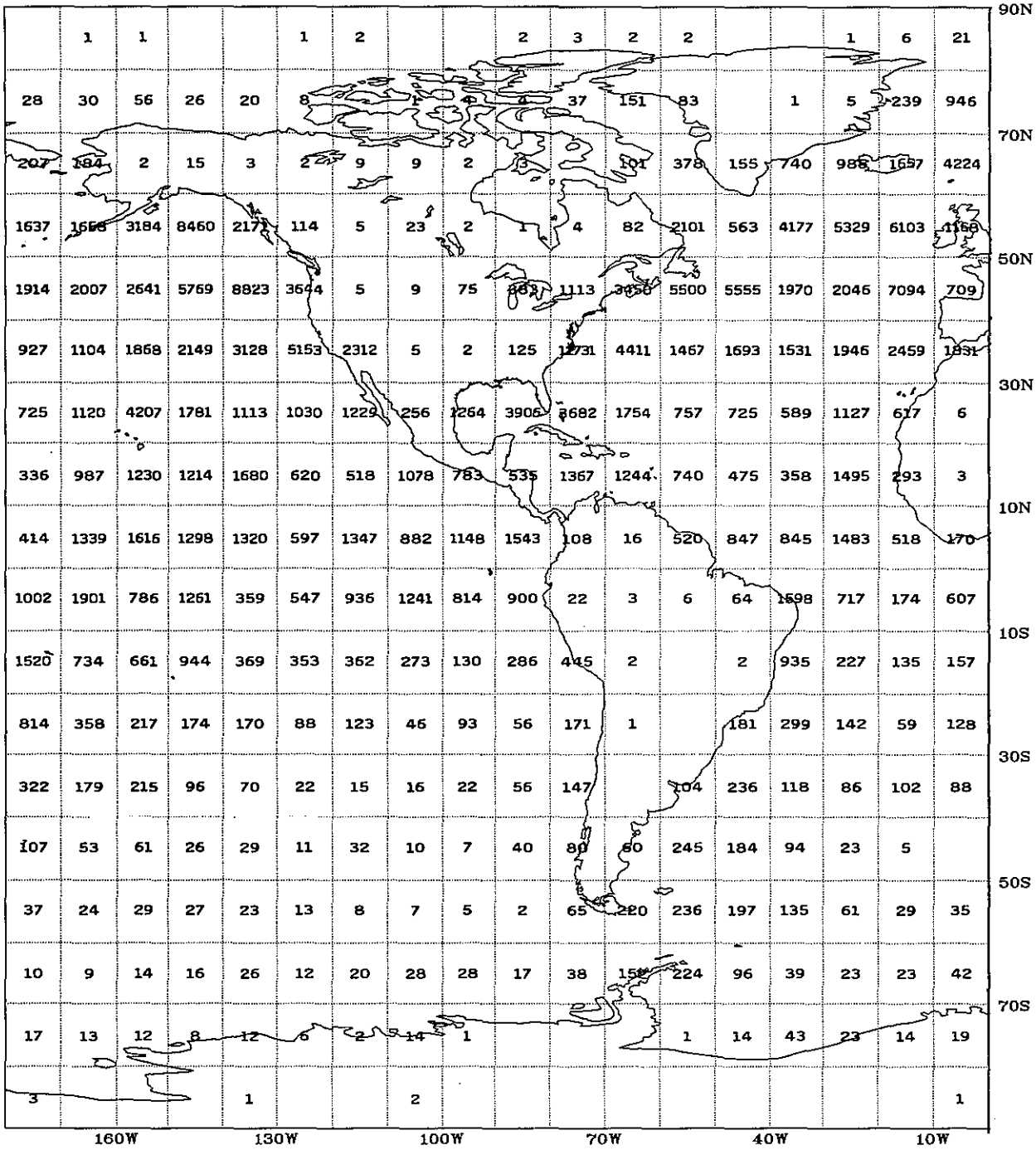
4.1.4.d Radio Message Bathythermograph Data (IBT)

Geographic area: Worldwide oceans

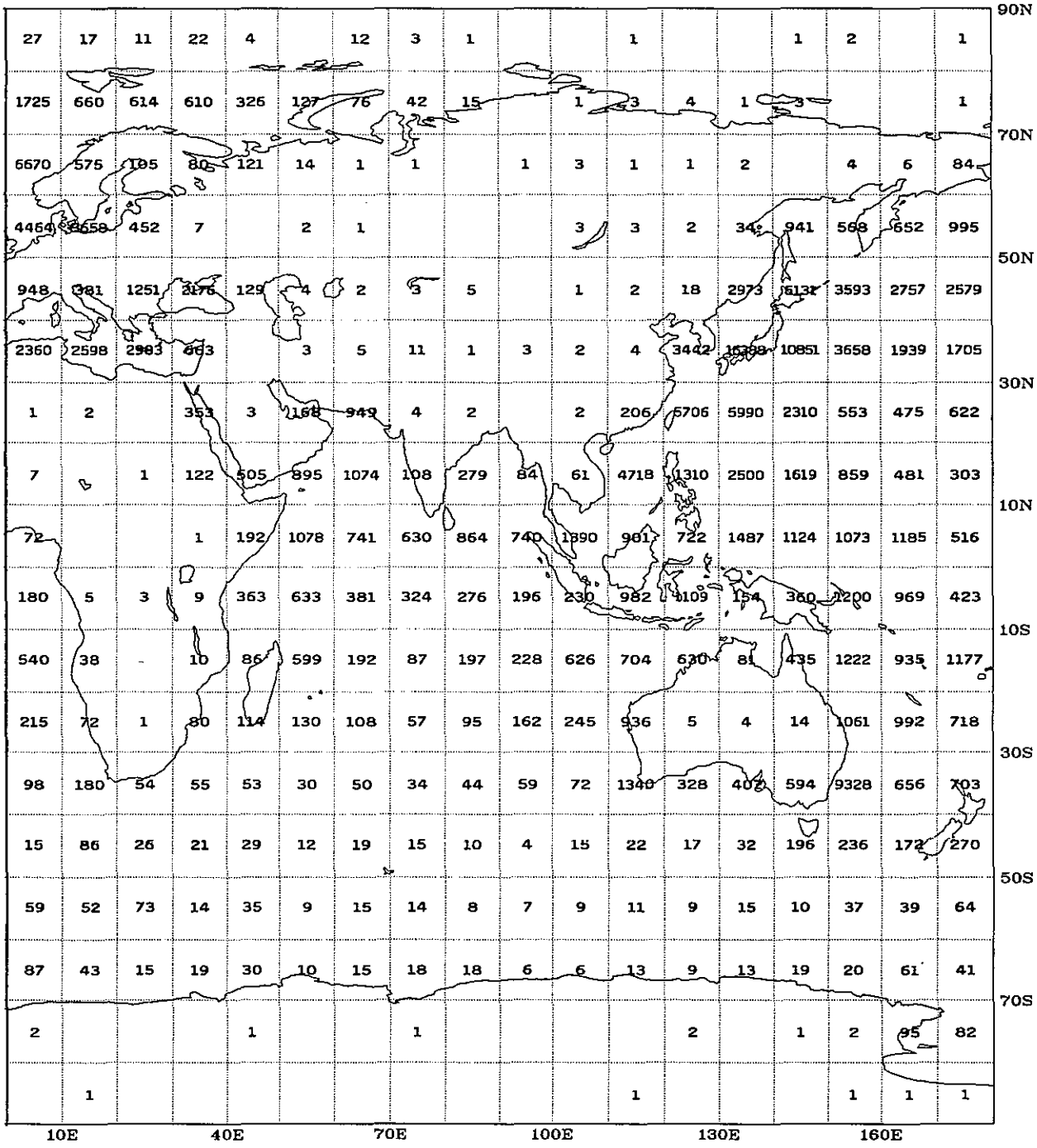
Time period: 1972 - present

This file contains telecommunicated bathythermograph (principally XBT) data transmitted by ships at sea over the Global Telecommunications System in the Integrated Global Ocean Services System (IGOSS) BATHY format. These data are accumulated and transmitted to NODC from two U.S. operational centers: the NOAA National Meteorological Center (NMC) and the U.S. Navy Fleet Numerical Oceanography Center (FNOC). Like XBT data, Radio Message Bathythermograph data temperature values are recorded at inflection point depths. The BATHY radio message allows for a limited number of depth-temperature pairs to be reported, however. Therefore, compared to delayed-mode XBT data, IBT data present a coarser representation of ocean temperature profiles.

Radio Message Bathythermograph Data (IBT)



Radio Message Bathythermograph Data (IBT)



File Structure -

Same as MBT Data File (see Section 4.1.4.a).

File Format -

Same as MBT Data File (see Section 4.1.4.a).

4.1.5 Ship Drift Surface Currents

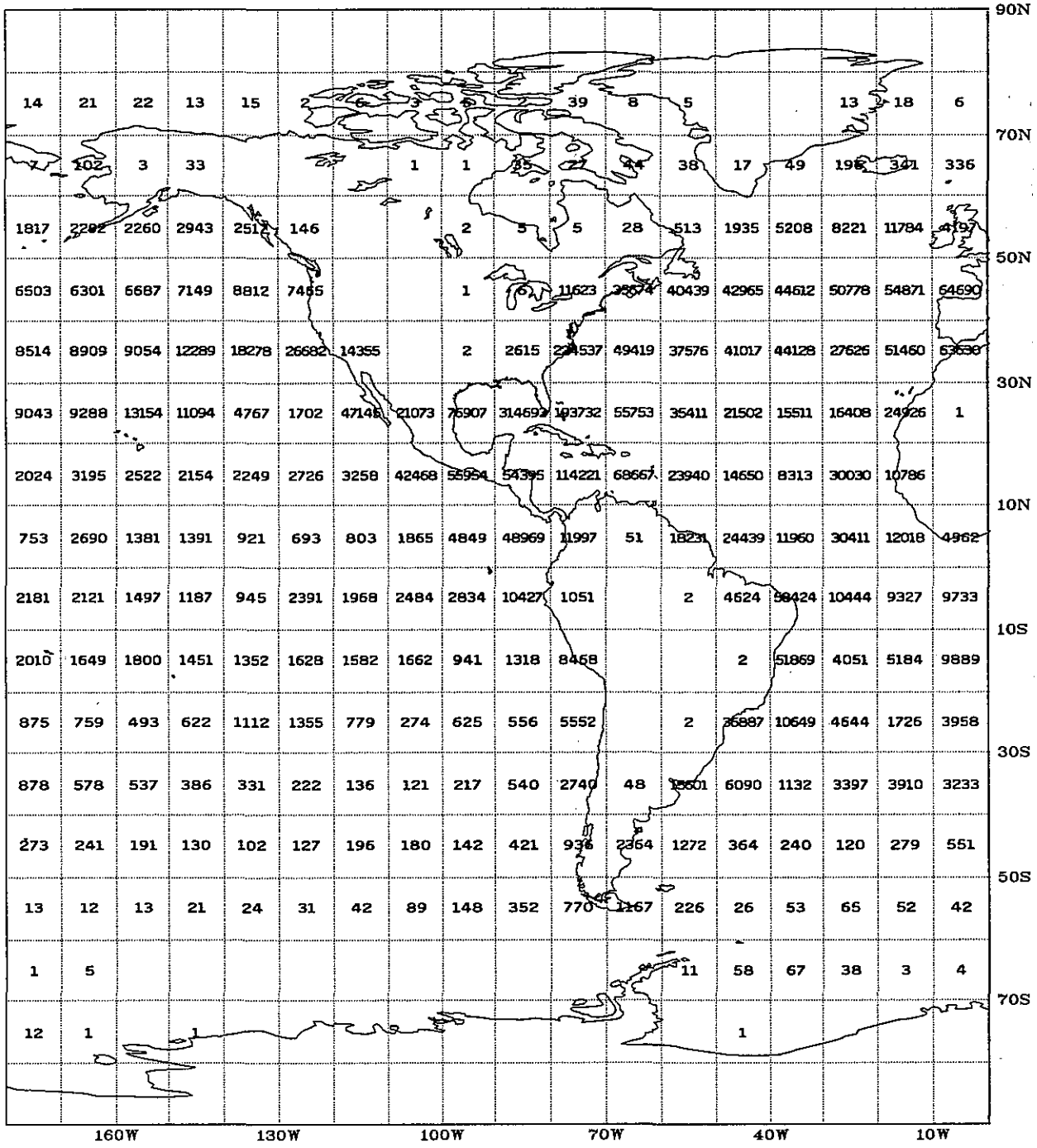
Geographic area: Worldwide oceans

Time period: 1850-1974

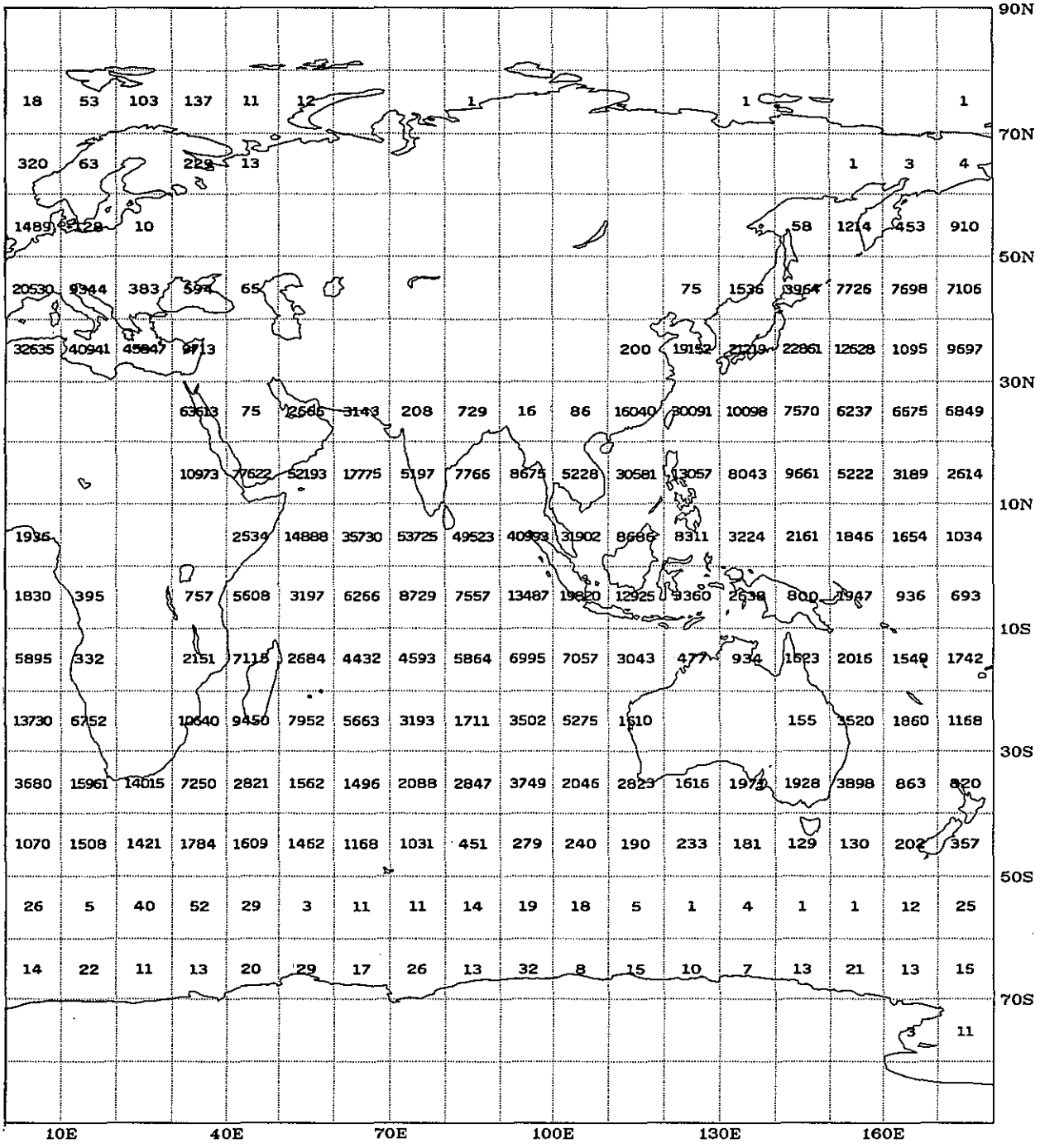
This file contains indirect determinations of ocean surface currents based on the ship drift method (plus a small number of current observations using the Geomagnetic Electrokinetograph (GEK) instrument). For each observation, date, data source, position (by geographic grid numbers to six-minute by six-minute squares), and current direction and speed are recorded. In the ship drift method, the difference between a ship's dead-reckoned position (determined from its previous position, speed, and heading) and actual position determined from a navigational fix is ascribed solely to the effect of surface currents. Because other factors such as wind that affect the ship's course are ignored in this approximation, the individual observations are not highly accurate. This data file does provide useful statistical summaries of average current direction and speed, however. Most of the observations were made by ships from the United States (64 percent of all observations) and the Netherlands (32 percent), with smaller amounts from Japan, Britain, and France.

These surface current data are usually provided to users in one of two summary formats. The Surface Current Short Summary presents current vector components and resultants for specified area, time period, and geographic subsquare size; the Surface Current Long Summary includes this information plus a frequency distribution of current observations by eight compass directions and 15 speed classes (see Sections 6.3.2 and 6.3.3).

Ship Drift Surface Currents



Ship Drift Surface Currents



File Structure -

One 40-character record.

File Format -

Surface Current Data System (SCUDS)

PARAMETER	DESCRIPTION	SC
FILE NUMBER	ALWAYS '7'	1
DATA SOURCE	TWO-DIGIT CODE - (0 = U.S., 1 = NETHERLANDS, 2 = JAPAN, 3 = U.S. SUBMARINE LOGS, 4 = BRITAIN, 5 = FRANCE, 6 = JAPANESE GEOMAGNETIC ELECTROKINETOGRAPH (GEK), 15 = NETHERLANDS AND LESS THAN 1% JAPAN, WITH YEAR, DAY, AND 6-MINUTE POSITION NOT RECORDED)	2
DATE (GMT)	YYYMMDD - YEAR, MONTH, DAY (YEAR < 100 = 19TH CENTURY; YEAR ≥ 100 = 20TH CENTURY; 255 = NOT RECORDED - E.G., YEAR 1925 CODED AS '125' AND YEAR 1887 CODED AS '87')	4
AREA	ONE-DIGIT CODE (1 = NORTH ATLANTIC; 2 = OTHER OCEAN AREA)	11
TEN-DEGREE SQUARE	MODIFIED CANADIAN TEN-DEGREE SQUARE NUMBER	12
FIVE-DEGREE SQUARE	MODIFIED CANADIAN FIVE-DEGREE SQUARE NUMBER	16
TWO-DEGREE SQUARE	MODIFIED CANADIAN TWO-DEGREE SQUARE NUMBER	17
ONE-DEGREE SQUARE	MODIFIED CANADIAN ONE-DEGREE SQUARE NUMBER	19
QUARTER OF ONE-DEGREE SQUARE	MODIFIED CANADIAN 'QUARTER DEGREE' SQUARE NUMBER (= 1, 2, 3, OR 4; 9 = NOT RECORDED)	21
SIX-MINUTE SQUARE	MODIFIED CANADIAN 'ONE-TENTH DEGREE' SQUARE NUMBER (= 00 THROUGH 99; 100 = NOT RECORDED)	22
CURRENT DIRECTION	XXXXXXXX (TENS OF DEGREES; 36 COMPASS POINTS)	25
CURRENT SPEED	XXXXXXXX (KNOTS TO TENTHS)	33

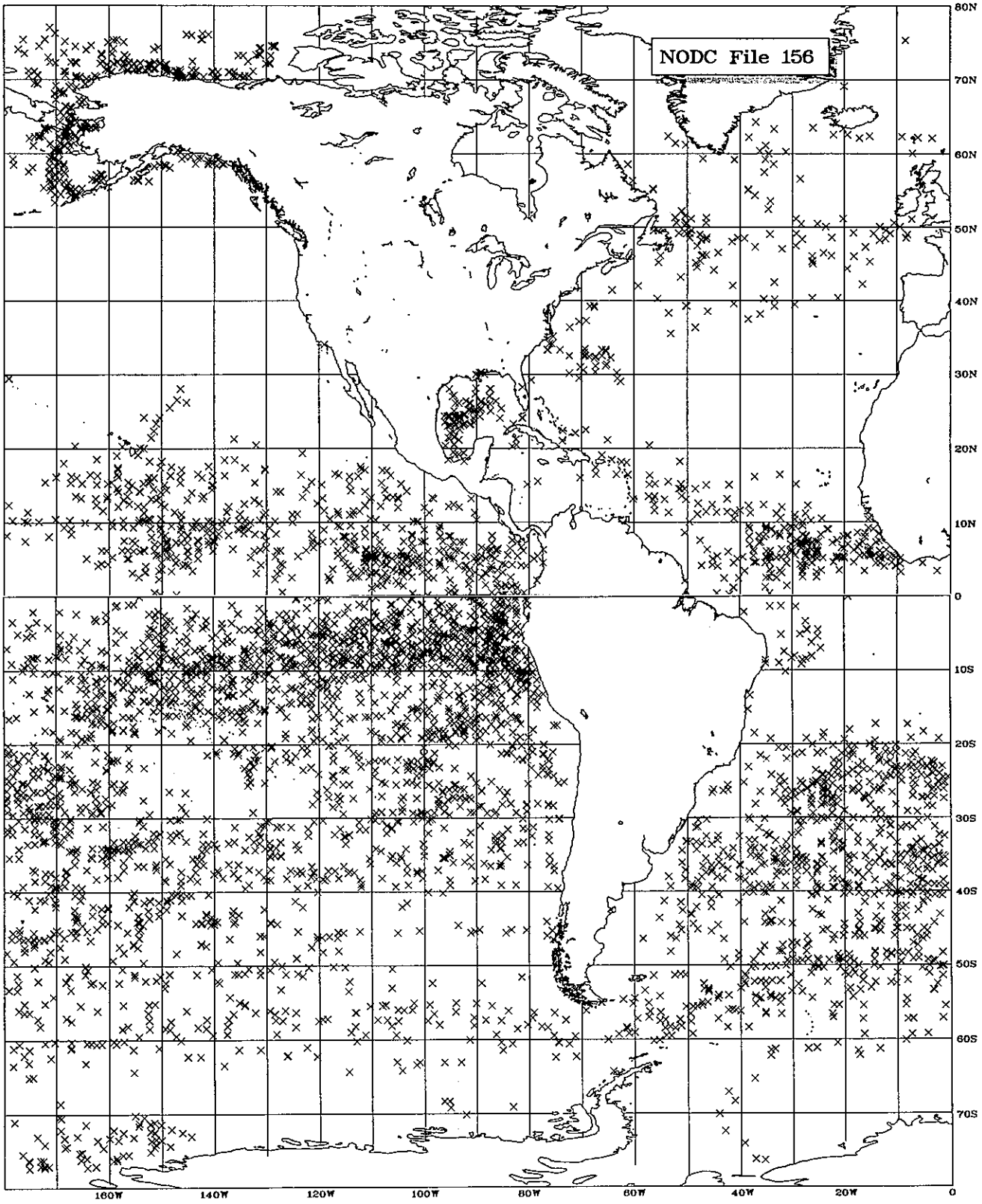
4.1.6 Drifting Buoy Data (F156)

Geographic area: Worldwide oceans

Time period: 1975 - present

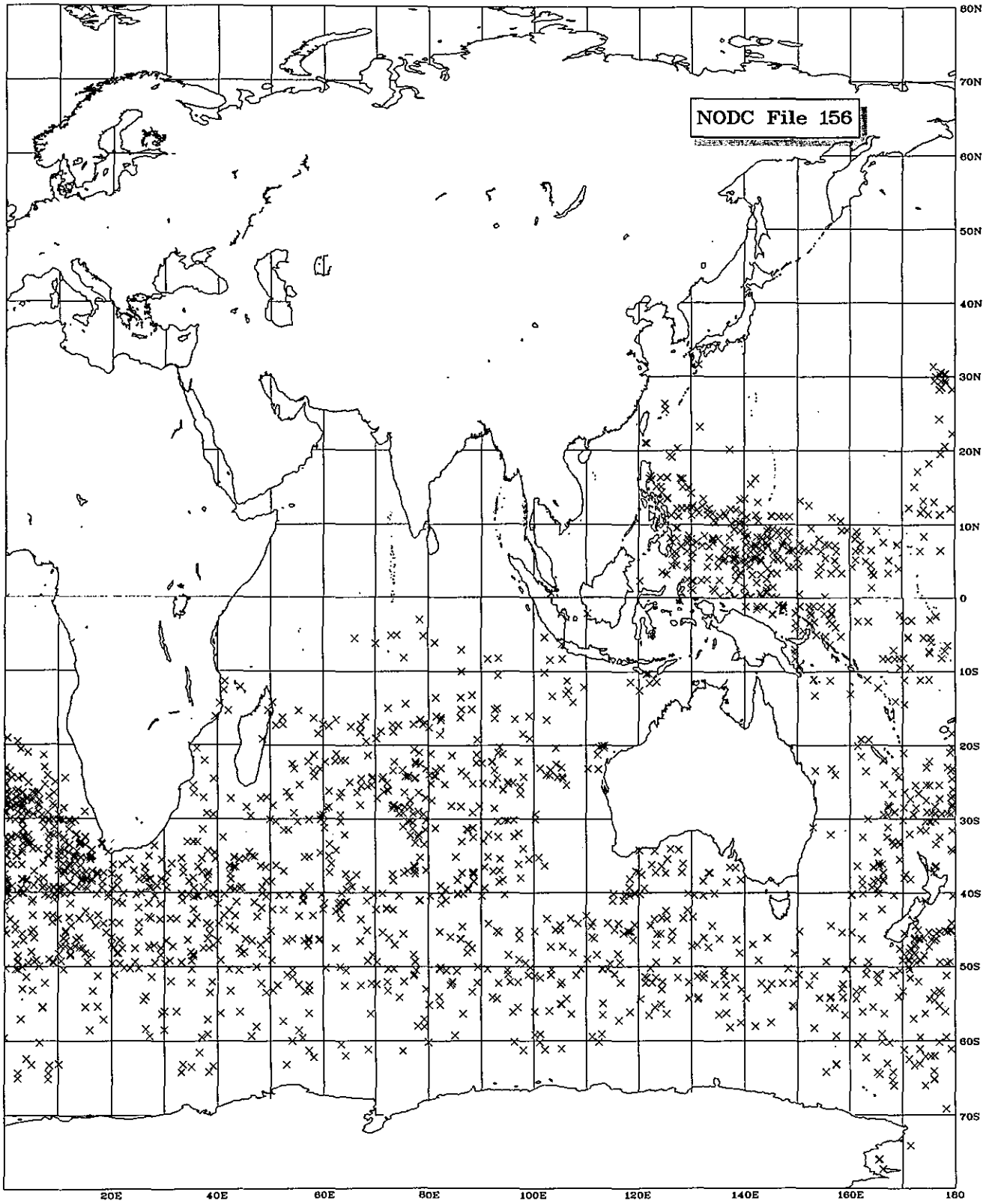
This file contains time series ocean circulation data from drifting buoys, drogues, or other instrumented devices. Movement is reported as point-to-point geographic positions determined by shore-based, surface ship, aircraft, or satellite observations. Data from both ocean currents and sea ice movement can be reported in this format over time periods ranging from minutes to months. Directions and speed between individual observations may be computed from these data and presented in graphic or summary listing form to provide information on circulation patterns and mass transport in offshore and nearshore regions. Platform name (for platform acquiring data or deploying device), drogue characteristics, start and end positions and times, and observation frequency (if constant time interval) are reported for each series of observations. The data record comprises position, date, and time for each observation. Other surface meteorological or oceanographic parameters (e.g., water temperature and salinity, air temperature and pressure, wind, waves) and subsurface data (depth, pressure, temperature) may also be reported. Text records may be used to report general comments or to describe individual drogue observations.

Drifting Buoy Data (FI56)



NOTE: *In this location plot of time series Drifting Buoy Data (NODC File 156), the plot symbol "X" shows the locations of the drifters at the start of each month or segment of a month along their tracks.*

Drifting Buoy Data (FI56)



NOTE: *In this location plot of time series Drifting Buoy Data (NODC File 156), the plot symbol "X" shows the locations of the drifters at the start of each month or segment of a month along their tracks.*

File Structure -

Seven 80-character records: (1) Header Record, (2) Launch Summary Record, (3) Data Record, (4) Subsurface Record, (5) Data Record 2, (6) Subsurface Current Record, and (7) Text Record.

File Format -

Drifting Buoy Data (F156)

PARAMETER	DESCRIPTION	SC	FL
HEADER RECORD			
NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A'	10	1
DROGUE NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY INVESTIGATOR - ANALOGOUS TO STATION NUMBER	11	5
DROGUE TYPE	FIVE-CHARACTER FIELD FOR INDICATING TYPE OF DROGUE - DETERMINED BY INVESTIGATOR	16	5
PRINCIPAL INVESTIGATOR	15-CHARACTER FIELD FOR NAME OF PRINCIPAL INVESTIGATOR	21	15
INSTITUTION OR AGENCY	15-CHARACTER FIELD FOR NAME OF INSTITUTION OR AGENCY	36	15
PLATFORM NAME	12-CHARACTER FIELD FOR NAME OF PLATFORM ACQUIRING DATA OR DEPLOYING BUOY	51	12
BUOY NUMBER	5-CHARACTER FIELD FOR IDENTIFYING THE BUOY ASSOCIATED WITH DROGUE	63	5
BLANKS		68	13
LAUNCH SUMMARY RECORD			
NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B' - ONLY ONE OF THESE RECORDS SHOULD BE SUBMITTED WITH EACH DROGUE DEPLOYMENT	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
LAUNCH POSITION:	POSITION AT DEPLOYMENT		
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
END POSITION:	POSITION AT PICKUP OR TERMINATION OF OBSERVATIONS		
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	31	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	37	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	38	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	45	1
LAUNCH DATE (GMT)	YYMMDD	46	6
LAUNCH TIME (GMT)	XXXX (HOURS AND MINUTES)	52	4
END DATE (GMT)	YYMMDD	56	6
END TIME (GMT)	XXXX (HOURS AND MINUTES)	62	4
DROGUE DEPTH	XXXX (DEPTH IN METERS)	66	4
OBSERVATION FREQUENCY	XXXX (HOURS AND MINUTES) USE WHEN BUOY POSITIONS ARE REPORTED AT SPECIFIC TIME INTERVALS	70	4
BLANKS		74	7
DATA RECORD			
NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C' - EACH RECORD CONTAINS INDIVIDUAL DROGUE POSITION AND ASSOCIATED SEA SURFACE CONDITIONS	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
OBSERVED POSITION:			
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1

LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
OBSERVED DATE (GMT)	YYMMDD	31	6
OBSERVED TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
SURFACE TEMPERATURE	XXX (DEG C TO TENTHS)	41	3
SURFACE SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	44	4
ATMOSPHERIC PRESSURE	XXXXXX (MILLIBARS TO HUNDREDTHS)	48	6
WIND SPEED	XX (METERS PER SECOND)	54	2
WIND DIRECTION	XX (TENS OF DEGREES)	56	2
WIND FORCE	ONE-CHARACTER CODE- USE NODC CODE 0052	58	1
WAVE HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	59	1
WAVE PERIOD	ONE-CHARACTER CODE - USE NODC CODE 0378	60	1
SEA STATE	ONE-CHARACTER CODE - USE NODC CODE 0109	61	1
BOTTOM DEPTH	XXXX-BOTTOM DEPTH AT REPORTED BUOY POSITION (DEPTH IN METERS)	62	4
AIR TEMPERATURE	XXXX (DEG C TO TENTHS) NEGATIVE VALUES PRECEDED BY MINUS SIGN	66	4
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	70	1
BLANKS		71	6
SEQUENCE NUMBER	XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY - SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER	77	4

SUBSURFACE RECORD

NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D' - EACH RECORD CONTAINS SUBSURFACE DATA ASSOCIATED WITH THE DROGUES.	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
DEPTH	XXXXX (METERS TO HUNDREDTHS)	16	5
PRESSURE	XXXXX (DECIBARS TO HUNDREDTHS)	21	5
TEMPERATURE	XXX (DEG C TO TENTHS) NEGATIVE VALUES PRECEDED BY MINUS SIGN	26	3
DEPTH	XXXXX (METERS TO HUNDREDTHS)	29	5
PRESSURE	XXXXX (DECIBARS TO HUNDREDTHS)	34	5
TEMPERATURE	XXX (DEG C TO TENTHS)	39	3
DEPTH	XXXXX (METERS TO HUNDREDTHS)	42	5
PRESSURE	XXXXX (DECIBARS TO HUNDREDTHS)	47	5
TEMPERATURE	XXX (DEG C TO TENTHS)	52	3
DEPTH	XXXXX (METERS TO HUNDREDTHS)	55	5
PRESSURE	XXXXX (DECIBARS TO HUNDREDTHS)	60	5
TEMPERATURE	XXX (DEG C TO TENTHS)	65	3
BLANKS		68	9
SEQUENCE NUMBER	XXXX - SEE ABOVE	77	4

DATA RECORD 2

NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'E' - EACH RECORD CONTAINS INDIVIDUAL DROGUE POSITION (OBSERVED OR INTERPOLATED) AND ASSOCIATED SURFACE CONDITIONS	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
POSITION			
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
OBSERVED DATE (GMT)	YYMMDD	31	6
OBSERVED TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
HEIGHT OF ANEMOMETER	XXX (METERS TO TENTHS)	41	3
WIND SPEED	XXX (METERS/SEC TO TENTHS)	44	3
WIND DIRECTION	XXXX (DEGREES TO TENTHS FROM NORTH - DIRECTION FROM)	47	4
ATMOSPHERIC PRESSURE	XXXXXX (MILLIBARS TO HUNDREDTHS)	51	6
AIR TEMPERATURE	XXXX (DEG C TO TENTHS)	57	4
COMPASS BEARING OF SURFACE UNIT	XXXX (DEGREES TO TENTHS FROM NORTH)	61	4
BLANKS		65	11
POSITION CODE	ONE-CHARACTER CODE: C FOR CALCULATED OR INTERPOLATED M FOR MEASURED OR OBSERVED	76	1
SEQUENCE NUMBER	XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY- SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER	77	4

SUBSURFACE CURRENT RECORD			
NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F' - EACH RECORD CONTAINS SUBSURFACE CURRENT DATA ASSOCIATED WITH THE DROGUES. IF MORE THAN TWO CURRENT METERS ARE DEPLOYED WITH A DROGUE, USE MULTIPLE 'F' RECORDS.	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
POSITION			
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
OBSERVED DATE (GMT)	YYMMDD	31	6
OBSERVED TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
ICE MOVEMENT SPEED	XXXXX (CM/SEC TO TENTHS)	41	5
ICE MOVEMENT DIRECTION	XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)	46	4
DEPTH OF CURRENT METER	XXXX (METERS TO TENTHS)	50	4
ABSOLUTE CURRENT SPEED	XXXXX (CM/SEC TO TENTHS)	54	5
ABSOLUTE CURRENT DIRECTION	XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)	59	4
DEPTH OF CURRENT METER	XXXX (METERS TO TENTHS)	63	4
ABSOLUTE CURRENT SPEED	XXXXX (CM/SEC TO TENTHS)	67	5
ABSOLUTE CURRENT DIRECTION	XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)	72	4
POSITION CODE	ONE-CHARACTER CODE - ('C' = CALCULATED OR INTERPOLATED, 'M' = FOR MEASURED OR OBSERVED)	76	1
SEQUENCE NUMBER	XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY- SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER	77	4
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '156'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'T' - USE FOR COMMENTS AND OTHER INFORMATION	10	1
DROGUE NUMBER	SEE RECORD 'A'	11	5
TEXT	61-CHARACTER FIELD FOR COMMENTS- MULTIPLE TEXT RECORDS MAY BE USED TO DESCRIBE INDIVIDUAL DROGUE OBSERVATIONS OR FOR GENERAL COMMENTS	16	61
SEQUENCE NUMBER	TEXT RECORDS MAY BE INSERTED BETWEEN OR FOLLOW DATA RECORDS DEPENDING ON THE NATURE OF THE COMMENTS. THE ORDER OF SEQUENCE NUMBERS SHOULD REFLECT THE PROPER SORTING OF COMBINED DATA AND TRACK RECORDS FOR EACH DROGUE/BUOY.	77	4

NODC Code Tables Used with this Format -

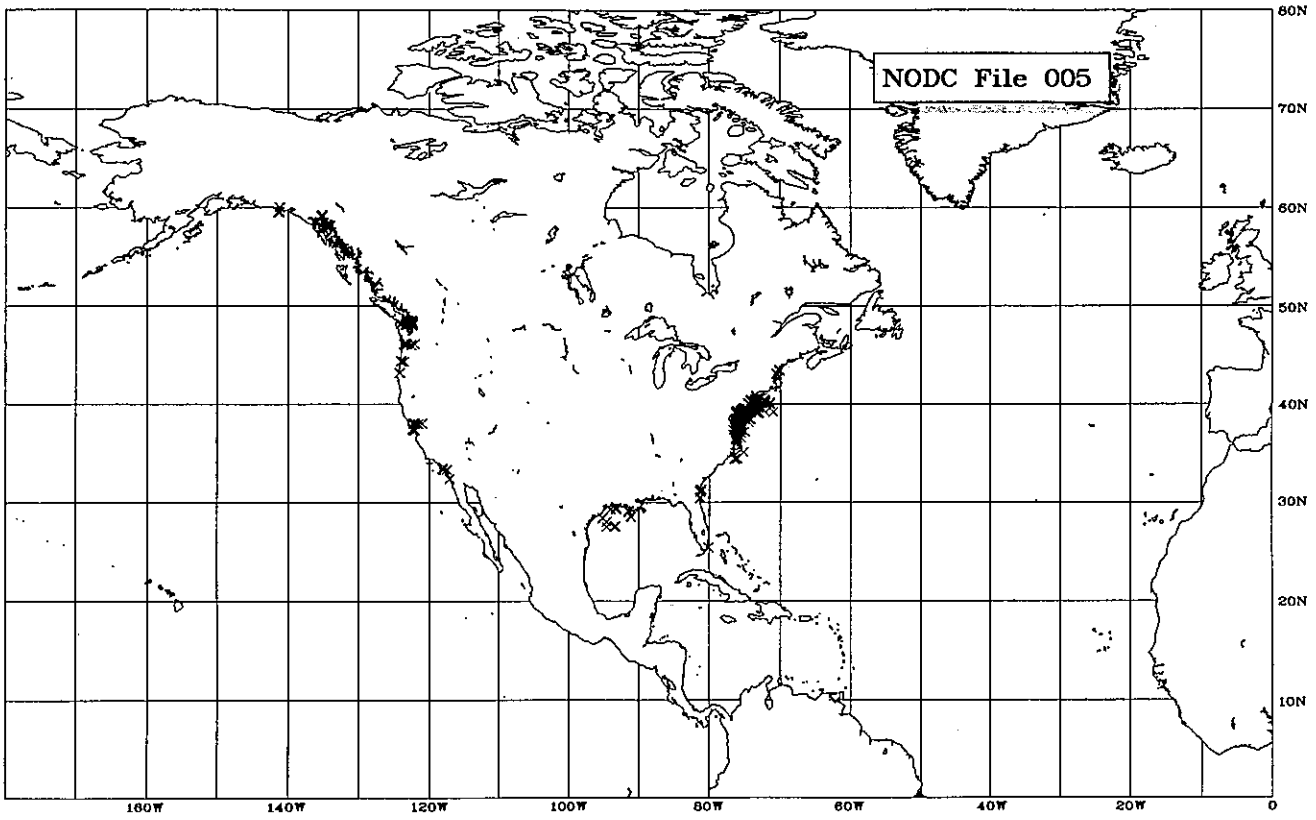
CODE NUMBER	CODE NAME
0052	WIND FORCE (BEAUFORT)
0104	WAVE HEIGHT (WMO 1555)
0109	SEA STATE (WMO 3700)
0378	WAVE PERIOD

4.1.7 Current Meter Data (Resultants) (F005)

Geographic area: U.S. coastal waters

Time period: 1973 - 1985

This file contains time series measurements of subsurface ocean currents from moored instruments, principally Aanderaa current meters (manufactured by Aanderaa Instruments, Inc.) Position, water depth, and sensor depth are reported for each station. The data record comprises values of current direction and speed at specified dates and times. Data values may be subject to averaging or filtering and are typically reported at 10-15 minute time intervals. Other environmental parameters may also be reported. Among these are: water temperature, salinity, conductivity, and transmissivity; wind direction and speed; and dominant wave directions height, and period. A text field is available for special comments.



File Structure -

Four 60-character records: (1) File Header Record, (2) Station Header Record, (3) Data Record, and (4) Data Record 2.

File Format -

Current Meter Data (Resultants) (F005)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '005'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
STATION	FIVE-CHARACTER BUOY STATION IDENTIFIER	11	5
SEQUENCE	X - FILE HEADER NUMBER	16	1
TEXT	44 CHARACTERS FOR OPTIONAL COMMENTS	17	44
STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '005'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2"	10	1
STATION	SEE RECORD '1'	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
SENSOR DEPTH	XXXX (METERS TO TENTHS)	31	4
WATER DEPTH	XXXX (METERS TO TENTHS)	35	4
SENSOR SERIAL NUMBER	FOUR-CHARACTER SERIAL NUMBER	39	4
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	43	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	44	10
BLANKS		54	7
DATA RECORD 1			
NODC FILE NUMBER	ALWAYS '005'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3"	10	1
STATION	SEE RECORD '1'	11	5
DATE	YYMMDD OBSERVED	16	6
TIME	XXXX (HOURS TO HUNDREDTHS)	22	4
CURRENT DIRECTION	XXX - TRUE DIRECTION TOWARD WHICH CURRENT IS FLOWING (WHOLE DEGREES)	26	3
CURRENT SPEED	XXXX (WHOLE CM/SEC)	29	4
TEMPERATURE	XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	33	3
PRESSURE, WATER	XXXX - (KG/SQ CM TO HUNDREDTHS)	36	4
CONDUCTIVITY	XXXX (MILLIMHOS/CM TO HUNDREDTHS)	40	4
INCLINOMETER ANGLE	XX - METER TILT OFF VERTICAL (WHOLE DEGREES)	44	2
WIND DIRECTION	XXX - TRUE DIRECTION FROM WHICH WIND IS BLOWING (WHOLE DEGREES)	46	3
WIND SPEED	XXXX (CM/SEC)	49	4
SEA DIRECTION	XXX - TRUE DIRECTION FROM WHICH DOMINANT WAVES ARE COMING (WHOLE DEGREES)	53	3
SEA HEIGHT	XXX - DOMINANT WAVES (CM)	56	3
SEA PERIOD	XX - DOMINANT WAVES (SECONDS)	59	2

DATA RECORD 2

NODC FILE NUMBER	ALWAYS '005'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
STATION	SEE RECORD '1'	11	5
DATE	YYMMDD OBSERVED	16	6
TIME	XXXX (HOURS TO HUNDREDTHS)	22	4
CURRENT DIRECTION	XXX (WHOLE DEGREES FROM TRUE NORTH)	26	3
CURRENT SPEED	XXXX (WHOLE CM/SEC)	29	4
TEMPERATURE	XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	33	3
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	36	5
TRANSMISSIVITY	XXXX (PERCENT TO TENTHS)	41	4
BLANKS		45	16

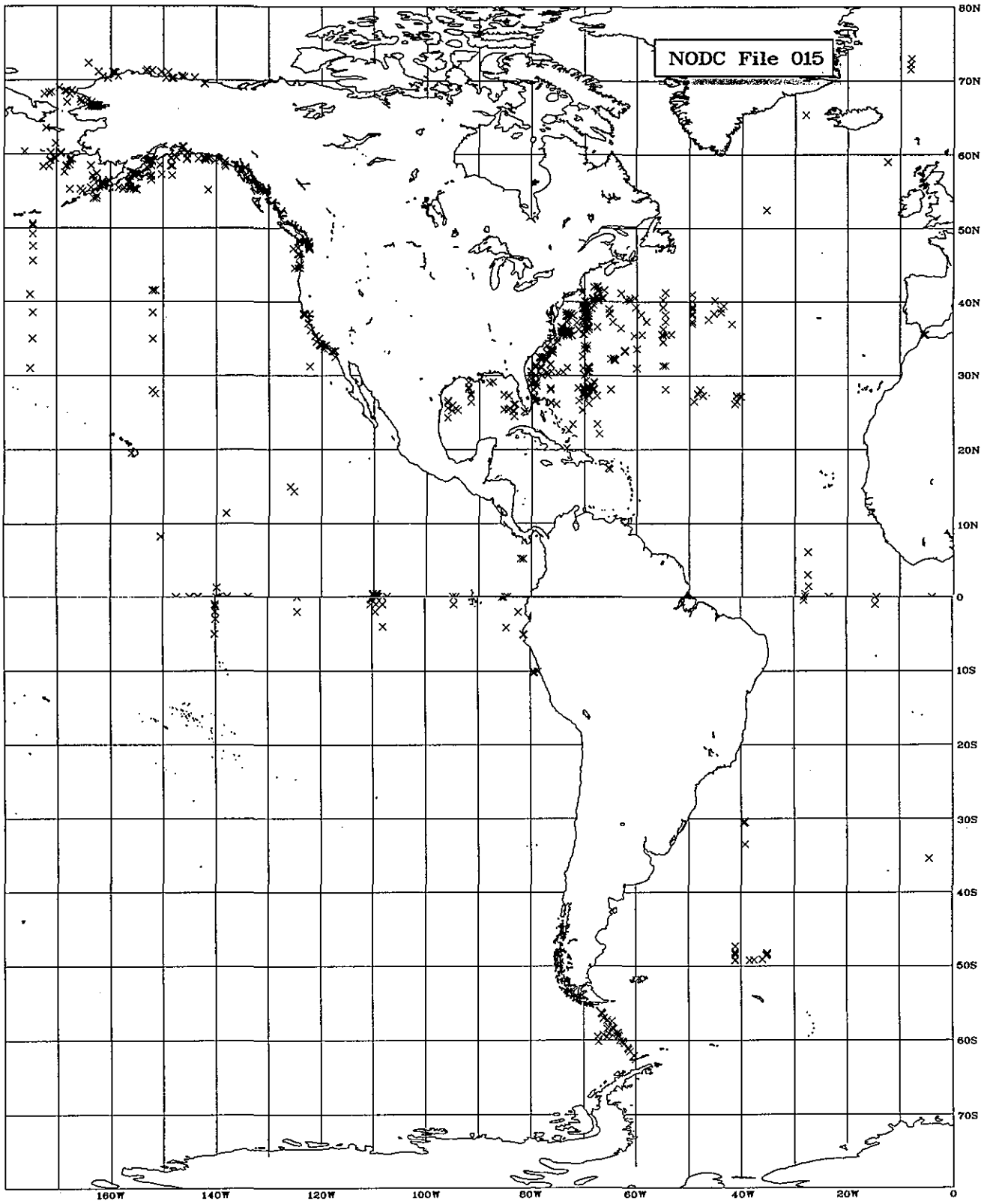
4.1.8 Current Meter Data (Components) (F015)

Geographic area: Worldwide oceans

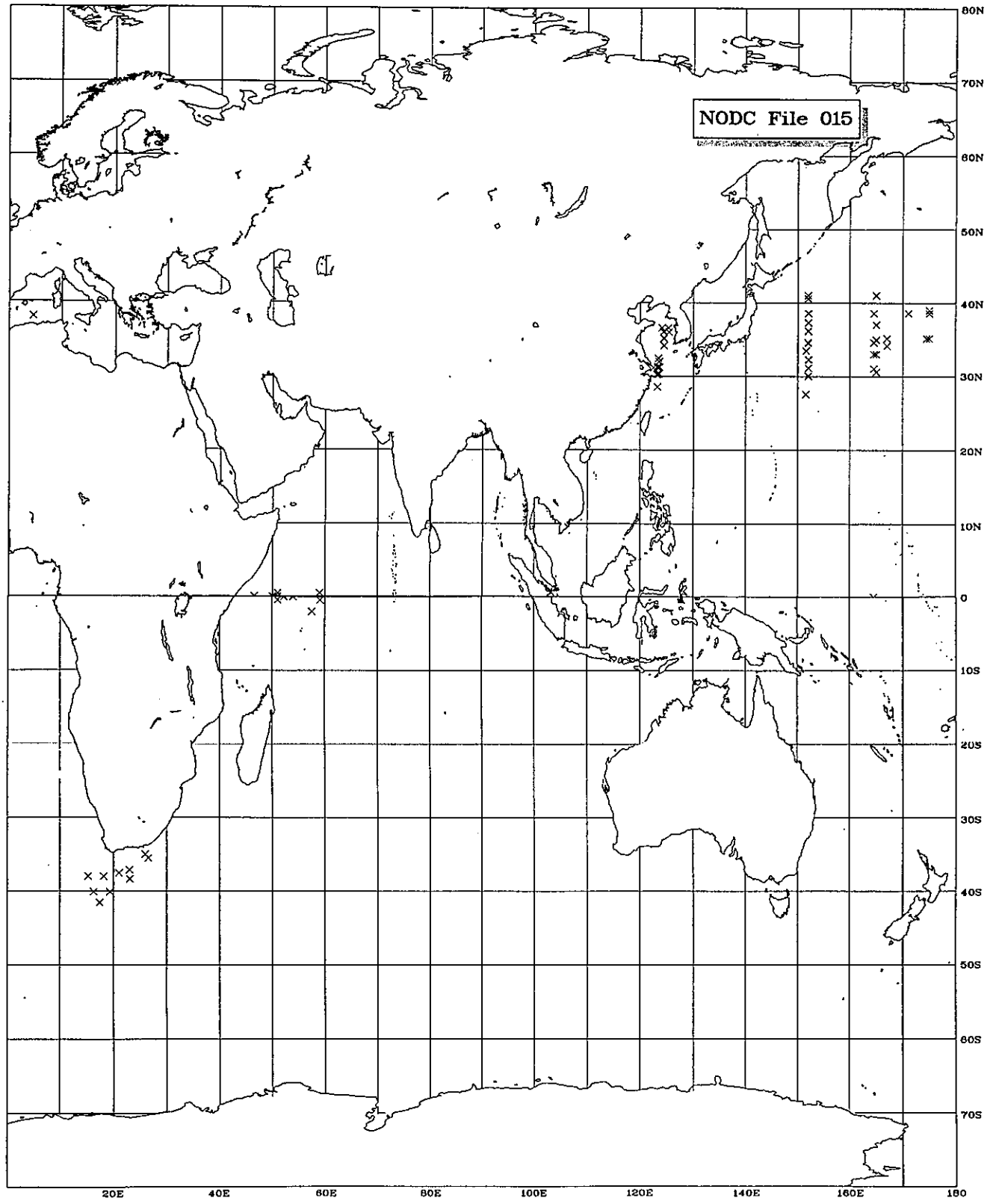
Time period: 1962 - 1988

This file contains time series measurements of ocean currents. Position, bottom depth, sensor depth, and meter characteristics are reported for each station. The data record comprises values of east-west (u) and north-south (v) current vector components at specified date and time. Current direction is defined as the direction toward which the water is flowing with positive directions east and north and negative directions west and south. Data values may be subject to averaging or filtering and are typically reported at 10-15 minute intervals. Water temperature, pressure, and conductivity or salinity may also be reported. A text record is available for optional comments.

Current Meter Data (Components) (F015)



Current Meter Data (Components) (F015)



File Structure -

Four 60-character records: (1) Text Record, (2) Master Record, (3) Detail Record 1, and (4) Detail Record 2.

File Format -

Current Meter Data (Components) (F015)

PARAMETER	DESCRIPTION	SC	EL
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '015'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
METER NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED ON RECORD TYPES '2' AND '3'	11	5
TEXT	38-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	16	38
BLANK		54	1
SEQUENCE NUMBER	XXXXXX - USED FOR SORTING TEXT INFORMATION	55	6
MASTER RECORD			
NODC FILE NUMBER	ALWAYS '015'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
METER NUMBER	SEE RECORD '1'	11	5
LATITUDE	DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
DEPTH OF BOTTOM	XXXXX (WHOLE METERS)	31	5
DEPTH OF CURRENT METER	XXXXX (METERS TO TENTHS)	36	5
METER USAGE SEQUENCE NUMBER	XXX - USED FOR INDICATING NUMBER OF TIMES METER HAS BEEN USED	41	3
INSTITUTION	TWO-CHARACTER INSTITUTION CODE - USE NODC CODE 0218	44	2
AXIS ROTATION	XXX - DEGREES CLOCKWISE FROM TRUE NORTH OF V AXIS - VALUES SHOULD BE 0 WHEN FINAL PROCESSED TO PROVIDE TRUE DIRECTION INFORMATION	46	3
LOCATION NAME	SIX-CHARACTER NAME DETERMINED BY ORIGINATOR	49	6
NUMBER OF DETAIL RECORDS	XXXXXX - USED TO INDICATE NUMBER OF DETAIL RECORDS (3) TO FOLLOW THE MASTER RECORD (2)	55	6
DETAIL RECORD 1			
NODC FILE NUMBER	ALWAYS '015'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
METER NUMBER	SEE RECORD '1'	11	5
DATE (GMT)	YYMMDD	16	6
TIME (GMT)	XXXXXX (HOURS, MINUTES TO HUNDREDTHS)	22	6
EAST-WEST CURRENT COMPONENT (U)	XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN - DIRECTION TOWARD	28	6
NORTH-SOUTH CURRENT COMPONENT (V)	XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN - DIRECTION TOWARD	34	6
TEMPERATURE	XXXXX - WITH NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN (DEG C TO THOUSANDTHS)	40	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	45	5
CONDUCTIVITY	XXXX (MILLIMHOS/CM TO HUNDREDTHS)	50	4
BLANK		54	1

SEQUENCE NUMBER	XXXXXX - USED FOR SORTING DATA RECORDS	55	6

DETAIL RECORD 2

NODC FILE NUMBER	ALWAYS '015'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
METER NUMBER	SEE RECORD '1'	11	5
DATE (GMT)	YYMMDD	16	6
TIME (GMT)	XXXXXX (HOURS, MINUTES TO HUNDREDTHS)	22	6
EAST-WEST CURRENT COMPONENT (U)	XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN - DIRECTION TOWARD	28	6
NORTH-SOUTH CURRENT COMPONENT (V)	XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN - DIRECTION TOWARD	34	6
TEMPERATURE	XXXXX - WITH NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN (DEG C TO THOUSANDTHS)	40	5
PRESSURE	XXXXX (DECIBARS TO TENTHS)	45	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	50	5
SEQUENCE NUMBER	XXXXXX - USED FOR SORTING DATA RECORDS	55	6

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0218	DATA SOURCE

4.1.9 Sea Level Data, Hourly (F184)

Geographic area: Pacific Ocean, Indian Ocean

Time period: 1942 - 1990

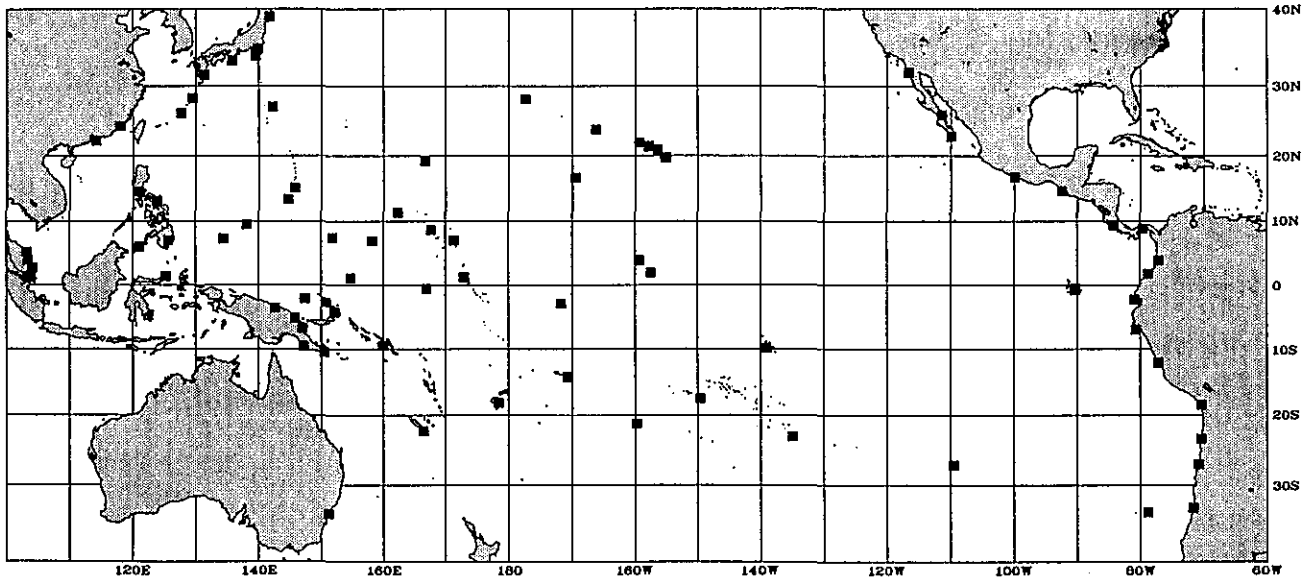
This format is used to record hourly values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value so that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator (byte 69) denotes whether or not the data are linked to a fixed datum.

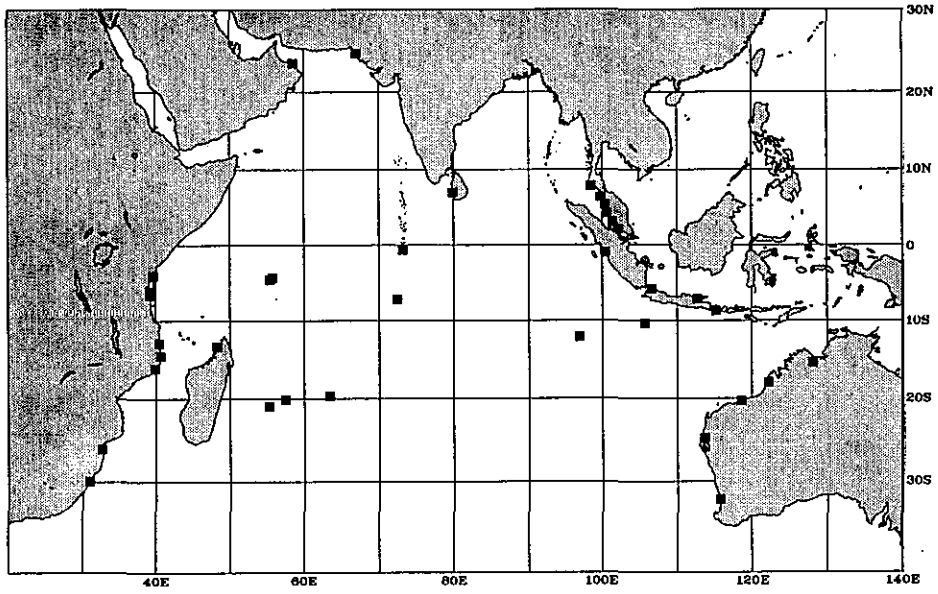
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

Sea Level Data, Hourly (F184) - Pacific Ocean stations



Sea Level Data, Hourly (F184) - Indian Ocean stations



File Structure -

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

File Format -

Sea Level Data, Hourly (F184)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '184'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
TIDE STATION ID	TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER	20	10
BLANK		30	1
START DATE	YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)	31	8
BLANK		39	1
DATE	YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)	40	8
BLANK		48	1
LATITUDE	DDMM (DEGREES, MINUTES)	49	4
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	53	1
BLANK		54	1
LONGITUDE	DDDMM (DEGREES, MINUTES)	55	5
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	60	1
BLANK		61	1
AVERAGING METHOD	ONE-CHARACTER CODE - USE NODC CODE 0505	62	1
BLANK		63	1
REFERENCE LEVEL OFFSET	XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA)	64	5
DATA REFERENCE INDICATOR	ONE-CHARACTER CODE - USE NODC CODE 0506	69	1
BLANK		70	1
TIME ZONE OFFSET	XXXX (+ OR - HOURS TO TENTHS FROM GMT)	71	4
BLANK		75	1
SEA LEVEL UNITS	TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE MILLIMETERS	76	2
BLANKS		78	3
SECOND HEADER RECORD			
NODC FILE NUMBER	ALWAYS '184'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
STATION NAME	16-CHARACTER FIELD - NAME OF TIDE STATION	20	16
BLANK		36	1
COUNTRY	16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY WHERE TIDE STATION IS LOCATED	37	16
BLANK		53	1
AGENCY	27-CHARACTER FIELD - DATA CONTRIBUTOR	54	27
DOCUMENTATION RECORD			
NODC FILE NUMBER	ALWAYS '184'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE NUMBER	FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION RECORDS	11	4
TEXT	66-CHARACTER FIELD FOR DOCUMENTATION TEXT	15	66

HOURLY DATA RECORD

NODC FILE NUMBER	ALWAYS '184'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
BLANK		11	1
DATE	YYYYMMDD (YEAR, MONTH, DAY - GMT)	12	8
CONTINUATION CODE	ONE-CHARACTER CODE: 1 = 1ST 12 HOURS OF DAY (0000-1100) 2 = 2ND 12 HOURS OF DAY (1200-2300)	20	1
SEA LEVEL 1	XXXXX -SEA LEVEL AT 0000 OR 1200 HOURS	21	5
SEA LEVEL 2	XXXXX - SEA LEVEL AT 0100 OR 1300 HOURS	26	5
SEA LEVEL 3	XXXXX - SEA LEVEL AT 0200 OR 1400 HOURS	31	5
SEA LEVEL 4	XXXXX - SEA LEVEL AT 0300 OR 1500 HOURS	36	5
SEA LEVEL 5	XXXXX - SEA LEVEL AT 0400 OR 1600 HOURS	41	5
SEA LEVEL 6	XXXXX - SEA LEVEL AT 0500 OR 1700 HOURS	46	5
SEA LEVEL 7	XXXXX - SEA LEVEL AT 0600 OR 1800 HOURS	51	5
SEA LEVEL 8	XXXXX - SEA LEVEL AT 0700 OR 1900 HOURS	56	5
SEA LEVEL 9	XXXXX - SEA LEVEL AT 0800 OR 2000 HOURS	61	5
SEA LEVEL 10	XXXXX - SEA LEVEL AT 0900 OR 2100 HOURS	66	5
SEA LEVEL 11	XXXXX - SEA LEVEL AT 1000 OR 2200 HOURS	71	5
SEA LEVEL 12	XXXXX - SEA LEVEL AT 1100 OR 2300 HOURS	76	5

(NOTE: MISSING VALUES ARE DENOTED BY '99999')

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0505	AVERAGING METHOD
0506	DATA REFERENCE INDICATOR
0507	INTERPOLATION METHOD

4.1.10 Sea Level Data, Daily (F185)

Geographic area: Pacific Ocean, Indian Ocean

Time period: 1942 - 1990

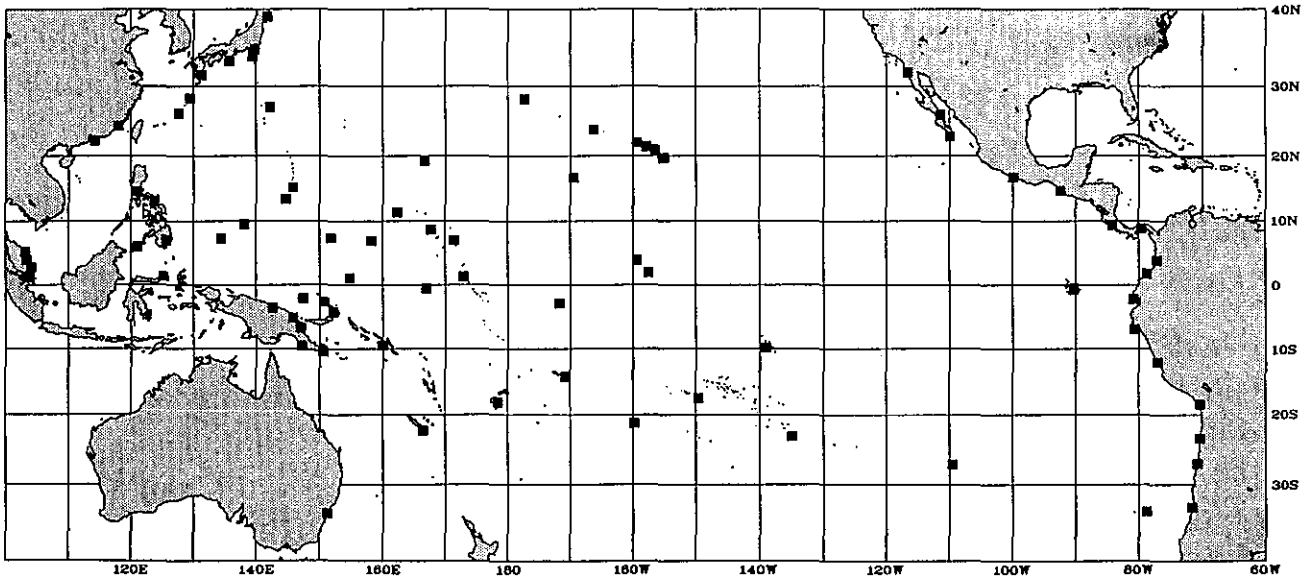
This format is used to record daily values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs. The daily data prepared by JASL are obtained with a 119-point convolution filter centered on noon applied to the hourly data with respective periods of the 95, 50, and 5 percent amplitude points at 124.0, 60.2 and 40.2 hours.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value such that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator, (byte 69) denotes whether or not the data are linked to a fixed datum.

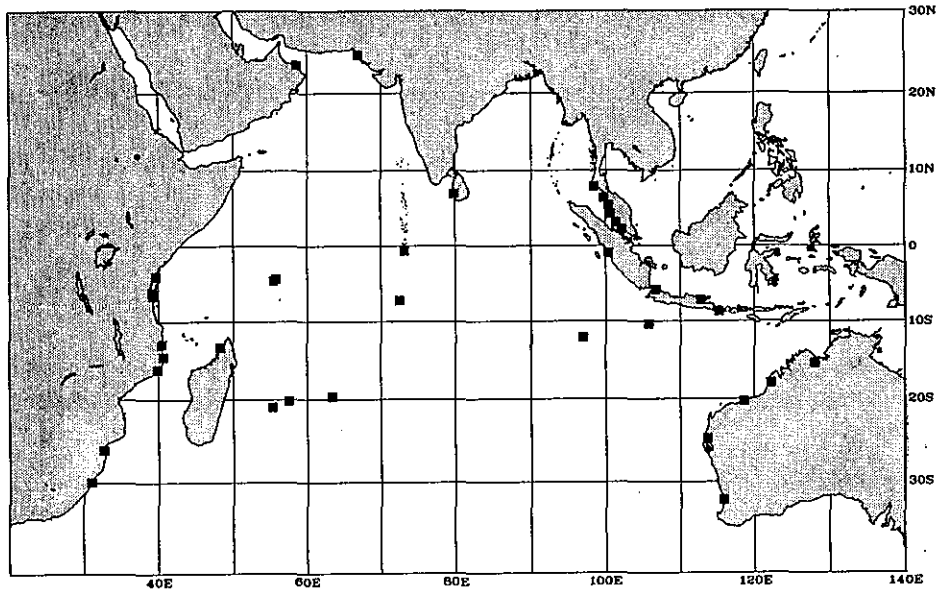
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

Sea Level Data, Daily (F185) - Pacific Ocean stations



Sea Level Data, Daily (F185) - Indian Ocean stations



File Structure -

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

File Format -

Sea Level Data, Daily (F185)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '185'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
TIDE STATION ID	TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER	20	10
BLANK		30	1
START DATE	YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)	31	8
BLANK		39	1
DATE	YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)	40	8
BLANK		48	1
LATITUDE	DDMM (DEGREES, MINUTES)	49	4
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	53	1
BLANK		54	1
LONGITUDE	DDDMM (DEGREES, MINUTES)	55	5
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	60	1
BLANK		61	1
AVERAGING METHOD	ONE-CHARACTER CODE - USE NODC CODE 0505	62	1
BLANK		63	1
REFERENCE LEVEL OFFSET	XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA)	64	5
DATA REFERENCE INDICATOR	ONE-CHARACTER CODE - USE NODC CODE 0506	69	1
BLANK		70	1
TIME ZONE OFFSET	XXXX (+ OR - HOURS TO TENTHS FROM GMT)	71	4
BLANK		75	1
SEA LEVEL UNITS	TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE MILLIMETERS	76	2
BLANKS		78	3
SECOND HEADER RECORD			
NODC FILE NUMBER	ALWAYS '185'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
STATION NAME	16-CHARACTER FIELD - NAME OF TIDE STATION	20	16
BLANK		36	1
COUNTRY	16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY WHERE TIDE STATION IS LOCATED	37	16
BLANK		53	1
AGENCY	27-CHARACTER FIELD - DATA CONTRIBUTOR	54	27
DOCUMENTATION RECORD			
NODC FILE NUMBER	ALWAYS '185'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE NUMBER	FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION RECORDS	11	4
TEXT	66-CHARACTER FIELD FOR DOCUMENTATION TEXT	15	66

DAILY DATA RECORD

NODC FILE NUMBER	ALWAYS '185'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
BLANK		11	1
DATE	YYYY - YEAR OF DAILY DATA	12	4
BLANK		16	1
DAY	XXX - JULIAN DAY OF FIRST OBSERVATION OF THIS RECORD (001 - 366)	17	3
BLANK		20	1
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	21	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	26	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	31	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	36	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	41	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	46	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	51	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	56	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	61	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	66	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	71	5
SEA LEVEL	XXXXX - DAILY SEA LEVEL VALUE	76	5

(NOTE: TWELVE DAILY VALUES ARE PLACED IN EACH RECORD. A TOTAL OF 31 SUCH RECORDS ARE REQUIRED TO RECORD DAILY VALUES FOR AN ENTIRE YEAR - 366 DAYS/12 = 31.
99999 = MISSING VALUE. -9999 IS USED TO FILL LEFTOVER DATA FIELDS ON RECORD 31.)

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0505	AVERAGING METHOD
0506	DATA REFERENCE INDICATOR
0507	INTERPOLATION METHOD

4.1.11 Sea Level Data, Monthly (F186)

Geographic area: Pacific Ocean, Indian Ocean

Time period: 1942 - 1990

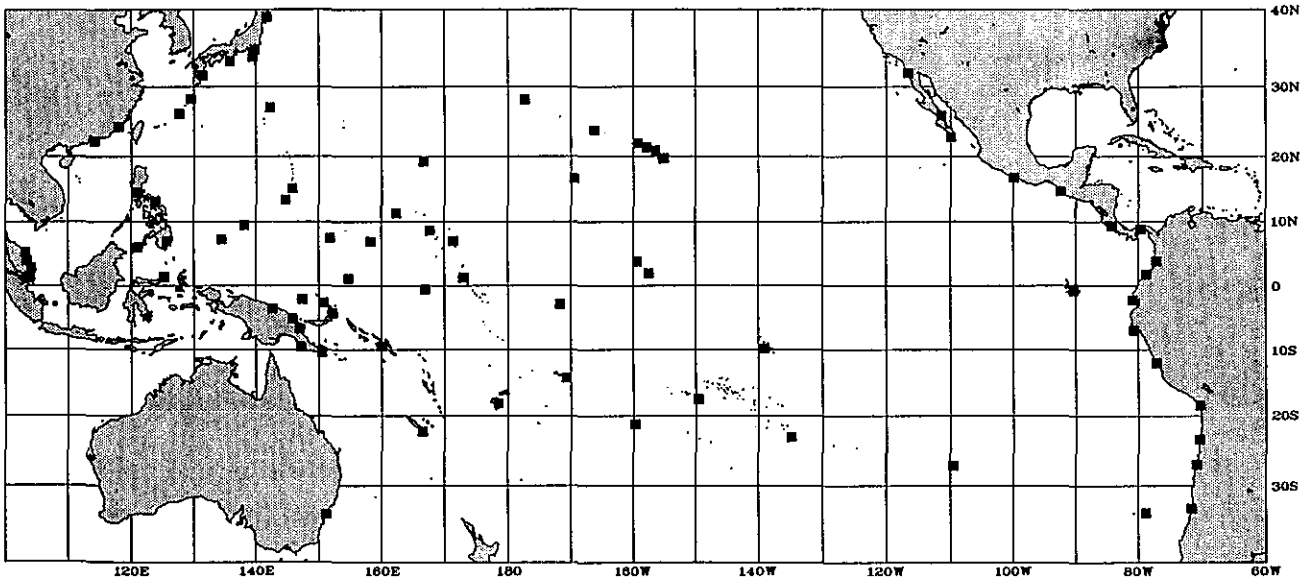
This format is used to record monthly values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs. For all data prepared by JASL the monthly values are obtained with a simple average of the daily values if 7 or fewer days are missing. If more daily values are missing, the monthly values are not computed.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value such that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator, (byte 69) denotes whether or not the data are linked to a fixed datum.

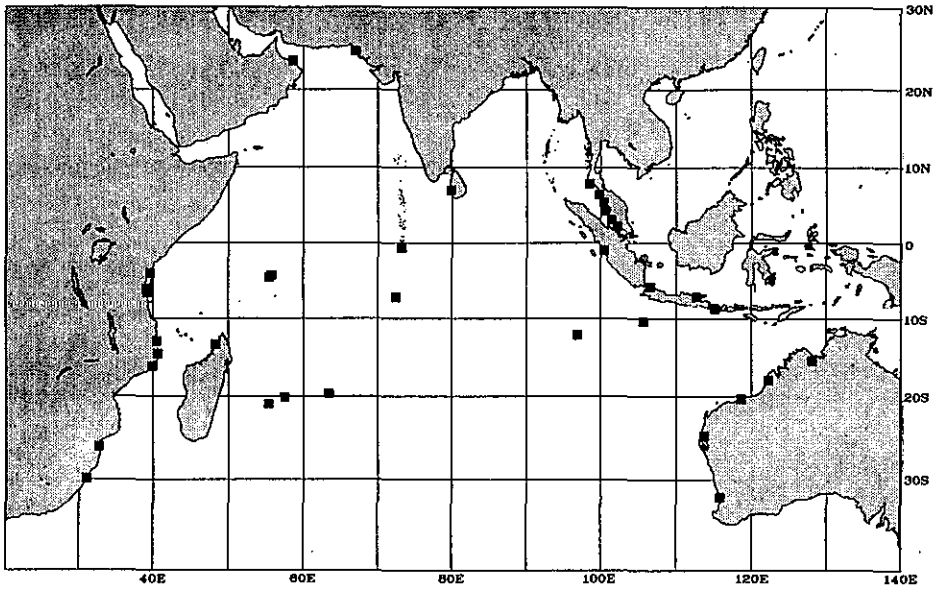
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

Sea Level Data, Monthly (F186) - Pacific Ocean stations



Sea Level Data, Monthly (F186) - Indian Ocean stations



File Structure -

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

File Format -

Sea Level Data, Monthly (F186)

PARAMETER	DESCRIPTION	SC	EL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '186'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
TIDE STATION ID	TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER	20	10
BLANK		30	1
START DATE	YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)	31	8
BLANK		39	1
DATE	YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)	40	8
BLANK		48	1
LATITUDE	DDMM (DEGREES, MINUTES)	49	4
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	53	1
BLANK		54	1
LONGITUDE	DDDMM (DEGREES, MINUTES)	55	5
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	60	1
BLANK		61	1
AVERAGING METHOD	ONE-CHARACTER CODE - USE NODC CODE 0505	62	1
BLANK		63	1
REFERENCE LEVEL OFFSET	XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA)	64	5
DATA REFERENCE INDICATOR	ONE-CHARACTER CODE - USE NODC CODE 0506	69	1
BLANK		70	1
TIME ZONE OFFSET	XXXX (+ OR - HOURS TO TENTHS FROM GMT)	71	4
BLANK		75	1
SEA LEVEL UNITS	TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE MILLIMETERS	76	2
BLANKS		78	3
SECOND HEADER RECORD			
NODC FILE NUMBER	ALWAYS '186'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
NODC STATION ID	EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC	11	8
BLANK		19	1
STATION NAME	16-CHARACTER FIELD - NAME OF TIDE STATION	20	16
BLANK		36	1
COUNTRY	16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY WHERE TIDE STATION IS LOCATED	37	16
BLANK		53	1
AGENCY	27-CHARACTER FIELD - DATA CONTRIBUTOR	54	27
DOCUMENTATION RECORD			
NODC FILE NUMBER	ALWAYS '186'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE NUMBER	FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION RECORDS	11	4
TEXT	66-CHARACTER FIELD FOR DOCUMENTATION TEXT	15	66

MONTHLY DATA RECORD

NODC FILE NUMBER	ALWAYS '186'	1	3
NODC TRACK NUMBER	SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '6'	10	1
BLANK		11	1
DATE	YYYY - YEAR OF MONTHLY DATA	12	4
CONTINUATION CODE	ONE-CHARACTER CODE: 1 = JAN-JUN, 2 = JUL-DEC	16	1
BLANK		17	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE	18	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	23	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	25	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE	26	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	31	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	33	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE0	34	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	39	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	41	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE	42	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	47	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	49	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE	50	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	55	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	57	1
SEA LEVEL	XXXXX - MONTHLY SEA LEVEL VALUE	58	5
DAY COUNT	XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE)	63	2
INTERPOLATION CODE	ONE-CHARACTER CODE - USE NODC CODE 0507	65	1
BLANKS		66	15

(NOTE; SIX MONTHLY ENTRIES PER RECORD, TWO RECORDS PER YEAR. MISSING VALUES ARE DENOTED '99999999' WHICH STANDS FOR SEA LEVEL '99999', DAY COUNT '99', AND INTERPOLATION CODE '9')

NODC Code Tables Used with this Format -

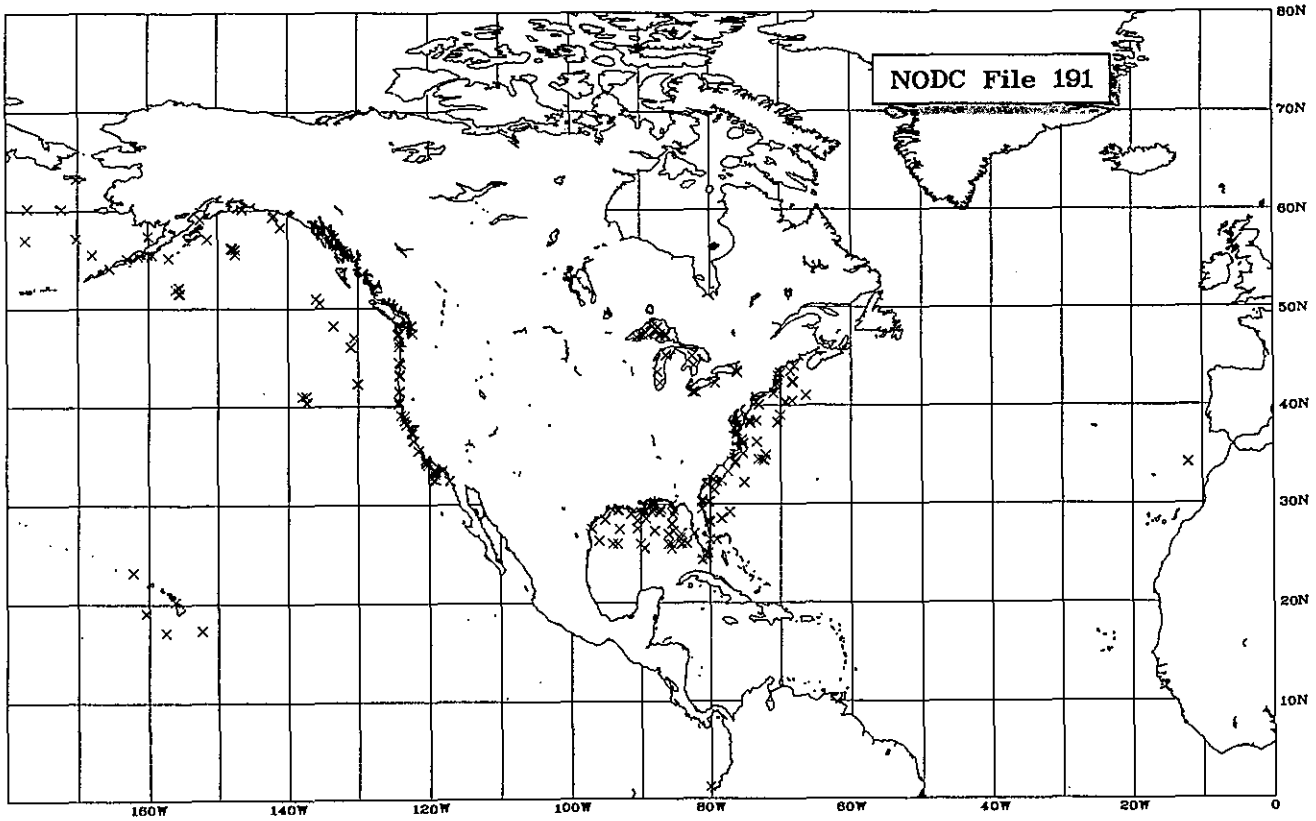
CODE NUMBER	CODE NAME
0505	AVERAGING METHOD
0506	DATA REFERENCE INDICATOR
0507	INTERPOLATION METHOD

4.1.12 Meteorology and Wave Spectra from Buoys (F191)

Geographic area: U.S. east coast, Gulf coast, west coast, Great Lakes, Gulf of Alaska, Bering Sea, and offshore Hawaii

Time period: 1970 - present

This file contains time series meteorological and oceanographic data collected by moored buoys and C-MAN (Coastal-Marine Automated Network) stations operated by the NOAA National Data Buoy Center (NDBC). The buoy network began in the early 1970s; the first C-MAN stations became operational in March 1983. These data are telecommunicated to U.S. operational centers for use in real-time forecasting and then accumulated and transmitted to NODC for permanent storage. Station identifier, position, date, time, sampling duration, and sampling rate are reported for each series of measurements. Principal parameters reported by both buoy and C-MAN stations include air temperature and pressure, wind speed and direction, wind gust, and sea surface temperature. The buoys (and a few C-MAN stations located on offshore platforms) also report wave data which may include significant wave height, average and dominant wave period, and wave spectra. Wave spectral data may be reported as spectral density values or (for directional spectra) as co- and quad-spectra or angular Fourier coefficients. For some stations other parameters such as subsurface temperature (from buoys) and precipitation (from both buoys and C-MAN stations) may also be reported.



File Structure -

Nine 120-character records: (1) Descriptive Header Record, (2) Environmental Data Record, (3) Wave Spectra Data Record, (4) Subsurface Temperature Data Record, (5) Subsurface Data Record, (6) Wave Spectra Data Record 2, (7) Wave Fourier Data Record, (8) Directional Wave Parameter Record, and (9) Continuous Wind Measurement Record.

File Format -

Meteorology and Wave Spectra from Buoys (F191)

PARAMETER	DESCRIPTION	SC	FL
DESCRIPTIVE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
STATION	SIX-CHARACTER UNIQUE NAME OF OBSERVATION POINT	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	27	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	33	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	34	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	41	1
BOTTOM DEPTH	XXXXX (METERS TO TENTHS)	42	5
MAGNETIC VARIATION	XXXX (WHOLE DEGREES FROM TRUE NORTH - SIGNED VALUE)	47	4
BUOY HEADING	XXX (WHOLE DEGREES FROM TRUE NORTH)	51	3
SAMPLING RATE	XXXX (ORIGINAL MEASUREMENTS PER MINUTE, TO TENTHS)	54	4
SAMPLING DURATION	XXXX (MINUTES TO HUNDREDTHS)	58	4
TOTAL INTERVALS	XXX - NUMBER OF FREQUENCY INTERVALS	62	3
CHIEF SCIENTIST	20-CHARACTER FIELD FOR SCIENTIST NAME	65	20
INSTITUTION	20-CHARACTER FIELD FOR DATA SOURCE	85	20
WIND SAMPLING DURATION	XXX (MINUTES TO TENTHS)	105	3
COMMENTS	16-CHARACTER FIELD	108	16
ENVIRONMENTAL DATA RECORD			
NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
ALTITUDE	XXX - METEOROLOGY (METERS TO TENTHS)	27	3
AIR TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	30	4
DEW POINT	XXXX (DEGREES C TO TENTHS)	34	4
BAROMETER	XXXXX - REDUCED TO SEA LEVEL (MB TO TENTHS)	38	5
WIND SPEED (8.5 MIN AVG)	XXXX (M/SEC TO HUNDREDTHS)	43	4
WIND DIRECTION (8.5 MIN AVG)	XXXX (DEGREES FROM TRUE NORTH TO TENTHS)	47	4
WEATHER	ONE-CHARACTER CODE - USE NODC CODE 0108	51	1
VISIBILITY	XXX (NAUTICAL MILES TO TENTHS)	52	3
PRECIPITATION	XXXX (ACCUMULATION IN MILLIMETERS)	55	4
SOLAR RADIATION	XXX (LANGLEYS/MIN TO HUNDREDTHS - WAVE LENGTH LESS THAN 3.6 MICRONS)	59	3
SOLAR RADIATION	XXX (LANGLEYS/MIN TO HUNDREDTHS - WAVE LENGTH 4.0 TO 50 MICRONS)	62	3
SIGNIFICANT WAVE HEIGHT	XXX - CORRECTED FOR LOW FREQUENCY NOISE (METERS TO TENTHS)	65	4
AVERAGE WAVE PERIOD	XXX (SECONDS TO TENTHS)	68	3
AVERAGE WAVE DIRECTION	XXX - DIRECTION OF PREDOMINANT WAVES (WHOLE DEGREES FROM TRUE NORTH)	71	3
HIGHEST CREST	XXX - FROM REFERENCE LEVEL (METERS TO TENTHS)	74	3
DEEPEST TROUGH	XXX - FROM REFERENCE LEVEL (METERS TO TENTHS)	77	3
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	80	4

SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS	84	5
CONDUCTIVITY	XXXXX (MILLIMHOS/CM TO THOUSANDTHS)	89	5
DOMINANT WAVE PERIOD	XXX (SECONDS TO TENTHS)	94	3
MAXIMUM WAVE HEIGHT	XXX (METERS TO TENTHS)	97	3
MAXIMUM WAVE STEEPNESS	XXX	100	3
WIND GUST	XXXX (METERS/SECOND TO HUNDREDTHS)	103	4
WIND GUST AVERAGING PERIOD	XX (SECONDS)	107	2
WIND GUST	XXXX (METERS/SECOND TO HUNDREDTHS)	109	4
WIND GUST AVERAGING PERIOD	XX (SECONDS)	113	2
WIND SPEED (58 MIN AVG)	XXX (METERS/SECOND TO TENTHS)	115	3
WIND DIRECTION (58 MIN AVG)	XXX (WHOLE DEGREES)	118	3

WAVE SPECTRA DATA RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
INTERVALS PER DIRECTION	XXX - TOTAL NUMBER OF FREQUENCIES IN THIS DIRECTION OR ZERO FOR NON-DIRECTIONAL	27	3
DIRECTION	XXXX (DEGREES TO TENTHS FROM TRUE NORTH) OR '9999' FOR NON-DIRECTIONAL	30	4
COUNT	X - NUMBER OF FREQUENCIES ON THIS RECORD	34	1
[DATA FOLLOWS: UP TO 5 FREQUENCY, RESOLUTION, AND DENSITY FIELDS. NULL FIELDS ARE ZERO OR BLANK]			
FREQUENCY	XXXX - CENTER FREQUENCY OF INTERVAL (HERTZ TO THOUSANDTHS)	35	4
RESOLUTION	XXXX - RESOLUTION OF INTERVAL (HERTZ TO TEN-THOUSANDTHS)	39	4
DENSITY	XXXXXX - SPECTRAL DENSITY OF INTERVAL (SQUARE METERS/HERTZ TO THOUSANDTHS)	43	6
FREQUENCY	XXXX - SEE ABOVE	49	4
RESOLUTION	XXXX - SEE ABOVE	53	4
DENSITY	XXXXXX - SEE ABOVE	57	6
FREQUENCY	XXXX - SEE ABOVE	63	4
RESOLUTION	XXXX - SEE ABOVE	67	4
DENSITY	XXXXXX - SEE ABOVE	71	6
FREQUENCY	XXXX - SEE ABOVE	77	4
RESOLUTION	XXXX - SEE ABOVE	81	4
DENSITY	XXXXXX - SEE ABOVE	85	6
FREQUENCY	XXXX - SEE ABOVE	91	4
RESOLUTION	XXXX - SEE ABOVE	95	4
DENSITY	XXXXXX - SEE ABOVE	99	6
BLANKS		105	16

SUBSURFACE TEMPERATURE DATA RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
DEPTH	XXXXX (METERS TO TENTHS)	27	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	32	4
DEPTH	XXXXX (METERS TO TENTHS)	36	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	41	4
DEPTH	XXXXX (METERS TO TENTHS)	45	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	50	4
DEPTH	XXXXX (METERS TO TENTHS)	54	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	59	4

DEPTH	XXXXX (METERS TO TENTHS)	63	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	68	4
DEPTH	XXXXX (METERS TO TENTHS)	72	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	77	4
DEPTH	XXXXX (METERS TO TENTHS)	81	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	86	4
DEPTH	XXXXX (METERS TO TENTHS)	90	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	95	4
DEPTH	XXXXX (METERS TO TENTHS)	99	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	104	4
DEPTH	XXXXX (METERS TO TENTHS)	108	5
TEMPERATURE	XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	113	4
BLANKS		117	4

SUBSURFACE DATA RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD TYPE	ALWAYS '5'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
DEPTH	XXXXX (METERS TO TENTHS)	27	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 57 AND 87			
U COMPONENT	XXXXX - EAST VECTORS (CM/SECOND TO TENTHS)	32	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 62 AND 92			
V COMPONENT	XXXXX - TRUE NORTH VECTOR (CM/SECOND TO TENTHS)	37	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 67 AND 97			
PRESSURE	XXXXX (KILOGRAMS/SQUARE CENTIMETER TO HUNDREDTHS)	42	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 72 AND 102			
CONDUCTIVITY	XXXXX (MILLIMHOS/CM TO THOUSANDTHS)	47	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 77 AND 107			
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	52	5
*THIS FIELD IS REPEATED 2 TIMES IN COLS 82 AND 112			
BLANKS		117	4

WAVE SPECTRA DATA RECORD 2

NODC FILE NUMBER	ALWAYS '191'	1	3	
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6	
RECORD TYPE	ALWAYS '6'	10	1	
STATION	SEE RECORD '1'	11	6	
OBSERVED DATE (GMT)	YYMMDD	17	6	
OBSERVED TIME (GMT)	HHMM	23	4	
FREQUENCY	XXXX (HZ TO THOUSANDTHS)	27	4	
RESOLUTION	XXXXX (HZ TO TEN-THOUSANDTHS)	31	5	
CO-SPECTRA (C11)	XXXXXX (SQUARE METERS/HZ) WHERE SUBSCRIPTS ARE 1=HEAVE,2=E-W SLOPE,3=N-S SLOPE	36	6	
EXPONENT	XX	42	2	
CO-SPECTRA (C22)	XXXXXX - SEE ABOVE	44	6	
EXPONENT	XX	50	2	
CO-SPECTRA (C33)	XXXXXX - SEE ABOVE	52	6	
EXPONENT	XX	58	2	
CO-SPECTRA (C12)	XXXXXX - SEE ABOVE	60	6	
EXPONENT	XX	66	2	
QUAD-SPECTRA (Q12)	XXXXXX - SEE ABOVE	68	6	
EXPONENT	XX	74	2	
CO-SPECTRA (C13)	XXXXXX - SEE ABOVE	76	6	
EXPONENT	XX	82	2	
QUAD-SPECTRA (Q13)	XXXXXX - SEE ABOVE	84	6	

EXPONENT	XX	90	2
CO-SPECTRA (C23)	XXXXXX - SEE ABOVE	92	6
EXPONENT	XX	98	2
QUAD-SPECTRA (Q23)	XXXXXX - SEE ABOVE	100	6
EXPONENT	XX	106	2
SPECTRA (C22-C33)	XXXXXX - SEE ABOVE	108	6
EXPONENT	XX	114	2
BLANKS		116	5

WAVE FOURIER DATA RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '7'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME (GMT)	HHMM	23	4
FREQUENCY	XXXX (HZ TO THOUSANDTHS)	27	4
RESOLUTION	XXXXX (HZ TO TEN-THOUSANDTHS)	31	5
ANGULAR FOURIER COEFF (A0)	XXXXXX (SQUARE METERS/HZ)	36	6
EXPONENT	XX	42	2
ANGULAR FOURIER COEFF (A1)	XXXXXX (SQUARE METERS/HZ)	44	6
EXPONENT	XX	50	2
ANGULAR FOURIER COEFF (B1)	XXXXXX (SQUARE METERS/HZ)	52	4
EXPONENT	XX	58	2
ANGULAR FOURIER COEFF (A2)	XXXXXX (SQUARE METERS/HZ)	60	6
EXPONENT	XX	66	2
ANGULAR FOURIER COEFF (B2)	XXXXXX (SQUARE METERS/HZ)	68	6
EXPONENT	XX	74	2
ANGULAR FOURIER COEFF (A3)	XXXXXX (SQUARE METERS/HZ)	76	6
EXPONENT	XX	82	2
ANGULAR FOURIER COEFF (B3)	XXXXXX (SQUARE METERS/HZ)	84	6
EXPONENT	XX	90	2
ANGULAR FOURIER COEFF (A4)	XXXXXX (SQUARE METERS/HZ)	92	6
EXPONENT	XX	98	2
ANGULAR FOURIER COEFF (B4)	XXXXXX (SQUARE METERS/HZ)	100	6
EXPONENT	XX	106	2
MEAN WAVE DIRECTION	XXX - ARCTAN B1/A1 (WHOLE DEGREES FROM TRUE NORTH)	108	3
BLANKS		111	10

DIRECTIONAL WAVE PARAMETER RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '8'	10	1
STATION	SEE RECORD '1'	11	6
OBSERVED DATE (GMT)	YYMMDD	17	6
OBSERVED TIME	HHMM	23	4
COUNT	X - NUMBER OF FREQUENCIES ON THIS RECORD (1 TO 3)	27	1
FREQUENCY	XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)	28	4
RESOLUTION	XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)	32	4
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATES (NO UNITS) USED	36	4
RADIUS - R1	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST HUNDREDTH. ACCURATE TO 0.1		
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATE (NO UNITS) USED	40	4
RADIUS - R2	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST. HUNDREDTH. ACCURATE TO 0.1		
WAVE DIRECTION - A1	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	44	4
WAVE DIRECTION - A2	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	48	4
WAVE CO-SPECTRA ESTIMATE	XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO THOUSANDTHS)	52	4
FREQUENCY	XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)	58	4
RESOLUTION	XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)	62	4
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATE (NO UNITS) USED	66	4
RADIUS - R1	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST HUNDREDTH. ACCURATE TO 0.1		
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATE (NO UNITS) USED	70	4

RADIUS - R2	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1		
WAVE DIRECTION - A1	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	74	4
WAVE DIRECTION - A2	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	78	4
WAVE CO-SPECTRA ESTIMATE	XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO THOUSANDTHS)	82	4
FREQUENCY	XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)	88	4
RESOLUTION	XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)	92	4
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATE (NO UNITS) USED	96	4
RADIUS - R1	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1		
WAVE POLAR COORDINATE	XXXX - POLAR COORDINATE (NO UNITS) USED	100	4
RADIUS - R2	IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1		
WAVE DIRECTION - A1	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	104	4
WAVE DIRECTION - A2	XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE	108	4
WAVE CO-SPECTRA ESTIMATE	XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO THOUSANDTHS)	112	6
BLANKS		118	3

CONTINUOUS WIND MEASUREMENT RECORD

NODC FILE NUMBER	ALWAYS '191'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '9'	10	1
STATION	SEE RECORD '1'	11	6
REPORT DATE	YYMMDD (UTC)	17	6
REPORT TIME	HHMM (HOURS, MINUTES - UTC)	23	4
SPEED AVERAGING METHOD	ONE-CHARACTER CODE: 1=VECTOR, 2=SCALAR	27	1
STANDARD DEVIATION OF HOURLY SPEED	XXX (M/SEC TO TENTHS)	28	3
STANDARD DEVIATION OF HOURLY DIRECTION	XXXX (WHOLE DEGREES)	31	4
HOURLY PEAK WIND	XXX (M/SEC TO TENTHS) HIGHEST 5 SEC WIND	35	3
DIRECTION OF HOURLY PEAK	XXX (WHOLE DEGREES)	38	3
MINUTE OF HOURLY PEAK	MM (MINUTES - UTC)	41	2
END OF ACQUISITON TIME	HHMM (HOURS, MINUTES - UTC)	43	4
FIRST AVERAGE DIRECTION	XXX (WHOLE DEGREES)	47	3
FIRST AVERAGE SPEED	XXX (M/SEC TO TENTHS)	50	3
SECOND AVERAGE DIRECTION	XXX (WHOLE DEGREES)	53	3
SECOND AVERAGE SPEED	XXX (M/SEC TO TENTHS)	56	3
THIRD AVERAGE DIRECTION	XXX (WHOLE DEGREES)	59	3
THIRD AVERAGE SPEED	XXX (M/SEC TO TENTHS)	62	3
FOURTH AVERAGE DIRECTION	XXX (WHOLE DEGREES)	65	3
FOURTH AVERAGE SPEED	XXX (M/SEC TO TENTHS)	68	3
FIFTH AVERAGE DIRECTION	XXX (WHOLE DEGREES)	71	3
FIFTH AVERAGE SPEED	XXX (M/SEC TO TENTHS)	74	3
SIXTH AVERAGE DIRECTION	XXX (WHOLE DEGREES)	77	3
SIXTH AVERAGE SPEED	XXX (M/SEC TO TENTHS)	80	3
BLANKS		83	38

TEN MINUTE AVERAGE WINDS ARE MEASURED FOR MINUTES 0-9, 10-19, 20-29, 30-39, 40-49, AND 50-59. THE FIRST SET IS FOR THE TEN MINUTE TIME PERIOD ENDING IMMEDIATELY BEFORE THE END OF ACQUISITION TIME. THE REMAINING SETS GO BACK IN TIME. FOR EXAMPLE, IF THE END OF ACQUISITION TIME IS 1025, THEN THE FIRST AVERAGE IS 1010 TO 1019, THE SECOND, 1000 TO 1009, ETC. IF THE END OF ACQUISITION TIME IS 1030, THEN THE FIRST PERIOD WILL BE 1020 TO 1029.

NODC Code Tables Used with this Format -

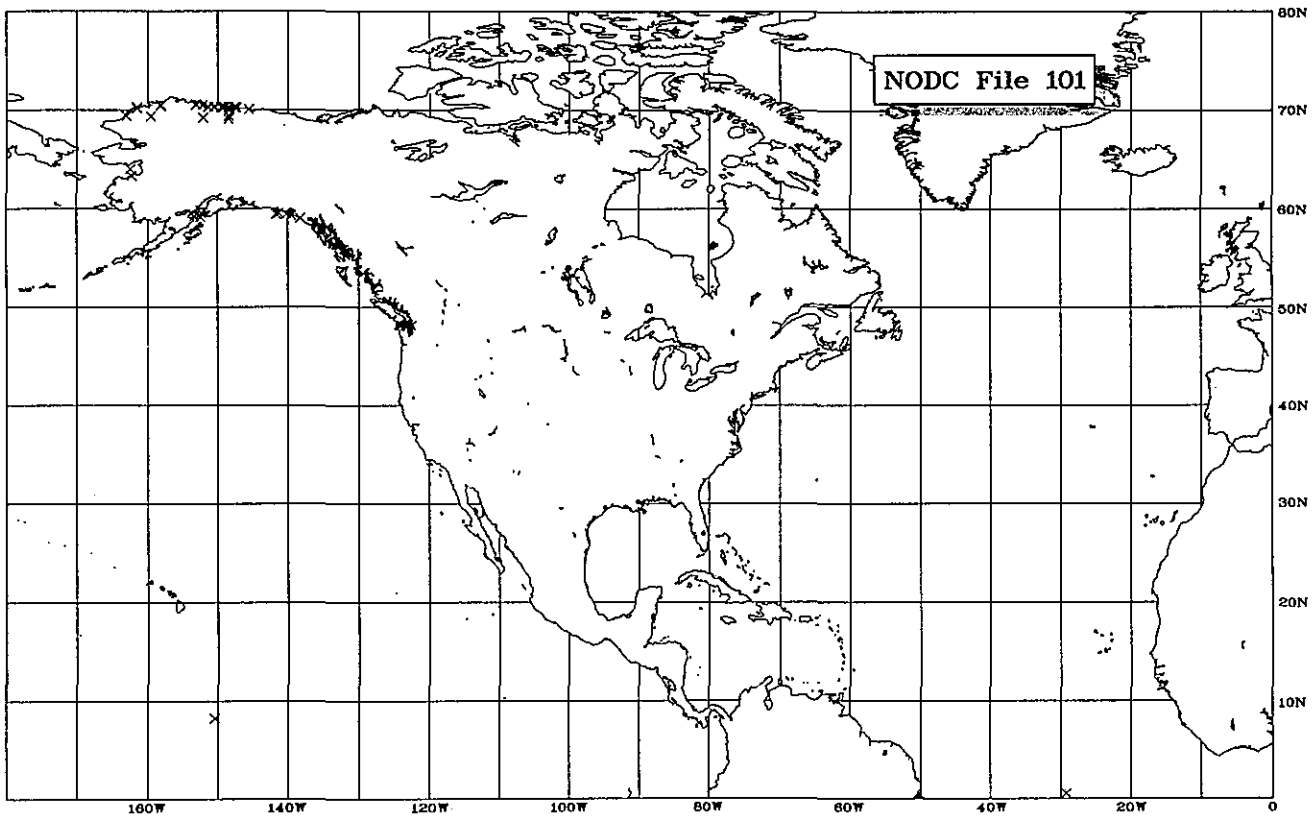
CODE NUMBER	CODE NAME
0108	WEATHER (WMO 4501)
0397	COORDINATE INDICATOR

4.1.13 Wind Measurements from Buoys (F101)

Geographic area: Coastal Alaska, Puget Sound

Time period: 1975 - 1985

This file contains time series measurements of wind and other surface meteorological parameters taken at fixed locations. The instrument arrays may be deployed on automated buoys, ships, or towers. Position, platform type and height, and instrument elevation are reported for each station. The data record comprises values of east-west (u) and north-south (v) wind components at specified date and time. East and north are defined as positive directions and west and south as negative. Wind values may be subject to averaging or filtering and are typically reported at time intervals of 10-15 minutes. Air temperature, atmospheric pressure, and dewpoint temperature may also be reported. A text record is available for describing site and instrument characteristics or reporting other comments.



File Structure -

Three 60-character records: (1) Text Record, (2) Station Header Record, and (3) Data Record.

File Format -

Wind Measurements from Buoys (F101)

PARAMETER	DESCRIPTION	SC	FL
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '101'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
METER NUMBER	5-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	11	5
TEXT	29-CHARACTER FIELD FOR COMMENTS OR INFORMATION DESCRIBING SITE, INSTRUMENT AND/OR DATA	16	29
SEQUENCE NUMBER	XXXXXX - ASCENDING NUMERIC USED TO SORT TEXT RECORDS	45	6
BLANKS		51	10
STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '101'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
METER NUMBER	SEE RECORD '1'	11	5
LATITUDE	DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)	22	1
LONGITUDE	DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W' (NODE CODE 0501)	30	1
PLATFORM TYPE	ONE-DIGIT CODE - USE NODC CODE 0100	31	1
ELEVATION	XXXX - ELEVATION TO BASE OF INSTRUMENT PLATFORM - (WHOLE METERS)	32	4
HEIGHT OF PLATFORM	XXX - HEIGHT OF BUILDING, TOWER, SHIP ABOVE GROUND OR SEA LEVEL - (METERS TO TENTHS)	36	3
METER USE NUMBER	XXX - NUMBER OF TIMES METER HAS BEEN DEPLOYED BY INVESTIGATOR	39	3
BLANKS		42	19
DATA RECORD			
NODC FILE NUMBER	ALWAYS '101'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
METER NUMBER	SEE RECORD '1'	11	5
DATE (GMT)	YYMMDD	16	6
TIME (GMT)	XXXXXX (HOURS, MINUTES TO HUNDREDTHS)	22	6
EAST-WEST WIND COMPONENT (U)	XXXXX - NEGATIVE COMPONENT PRECEDED BY MINUS SIGN ADJACENT TO THE VALUE - POSITIVE VALUE SHOULD BE BLANK - EAST AND NORTH ARE POSITIVE, WEST AND SOUTH ARE NEGATIVE - (METERS/SEC TO HUNDREDTHS) - WIND DIRECTION FROM	28	5
NORTH-SOUTH WIND COMPONENT (V)	XXXXX - SAME AS ABOVE	33	6
AIR TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	38	5
BLANKS		43	2
SEQUENCE NUMBER	XXXXXX - ASCENDING NUMERIC USED TO SORT DATA RECORDS	45	6
ATMOSPHERIC PRESSURE	XXXXX (MILLIBARS TO TENTHS)	51	5
DEWPOINT	XXXXX (DEG CENTIGRADE TO HUNDREDTHS)	56	5

NODC Code Tables Used with this Format -

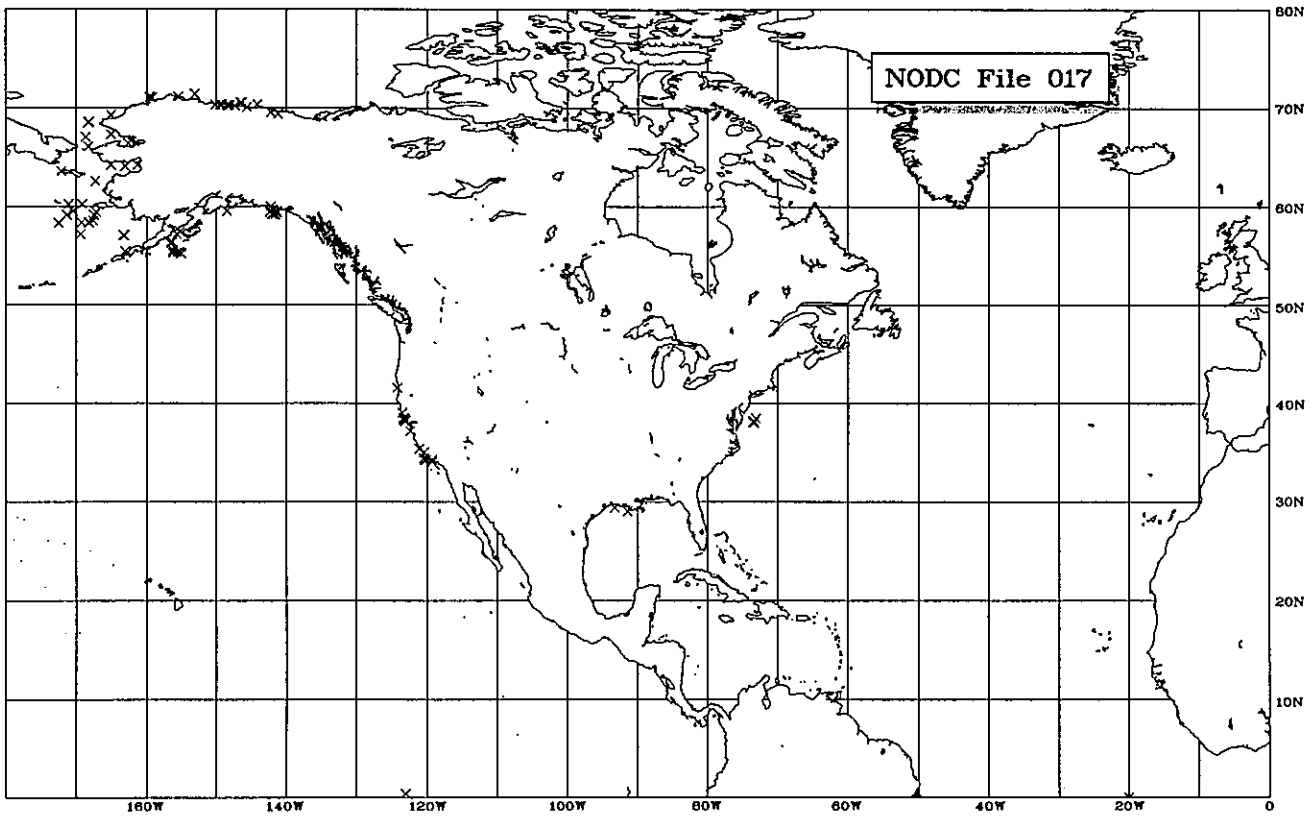
CODE NUMBER	CODE NAME
0100	PLATFORM TYPE

4.1.14 Pressure Gauge Data (F017)

Geographic area: U.S. coastal waters

Time period: 1975 - 1988

This file contains time series measurements of seawater pressure from anchored or bottom-mounted sensors. Position, bottom depth, and gauge depth are reported for each station. The data record comprises values of total pressure at specified date and time. Data values may be subject to averaging or filtering and are typically reported at time intervals of 10-15 minutes. Seawater temperature may also be reported. Comments may be reported in a text record.



File Structure -

Four 50-character records: (1) Text Record, (2) Gauge Master Record 1, (3) Gauge Master Record Record 2, and (4) Detail Record.

File Format -

Pressure Gauge Data (File 017)

PARAMETER	DESCRIPTION	SC	EL
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '017'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
GAUGE NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED ON RECORD TYPES 2, 3 AND 4	11	5
TEXT	20-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	16	20
SEQUENCE NUMBER	XXXXX - USED FOR SORTING TEXT RECORDS	36	5
BLANKS		41	10
GAUGE MASTER RECORD I			
NODC FILE NUMBER	ALWAYS '017'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
GAUGE NUMBER	SEE RECORD '1'	11	5
LATITUDE	DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
DEPTH OF PRESSURE GAUGE	XXXXX (METERS TO TENTHS)	31	5
NUMBER OF DETAIL RECORDS	XXXXX - USED TO INDICATE NUMBER OF DETAIL RECORDS (4) TO FOLLOW	36	5
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	41	10
GAUGE MASTER RECORD II			
NODC FILE NUMBER	ALWAYS '017'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
GAUGE NUMBER	SEE RECORD '1'	11	5
DEPTH TO BOTTOM	XXXXX (WHOLE METERS)	16	5
METER USAGE SEQUENCE NUMBER	XXX - USED FOR INDICATING NUMBER OF TIMES METER HAS BEEN USED	21	3
INSTITUTION	TWO-CHARACTER INSTITUTION CODE - USE NODC CODE 0218	24	2
LOCATION NAME	SIX-CHARACTER NAME DETERMINED BY THE ORIGINATOR	26	6
BLANKS		32	19
DETAIL RECORD			
NODC FILE NUMBER	ALWAYS '017'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
GAUGE NUMBER	SEE RECORD '1'	11	5
DATE (GMT)	YYMMDD	16	6
TIME (GMT)	XXXXXX (HOURS, MINUTES TO HUNDREDTHS)	22	6
TOTAL PRESSURE	XXXXXXXX (DECIBARS TO THOUSANDTHS)	28	8
SEQUENCE NUMBER	XXXXX - USED FOR SORTING DATA RECORDS	36	5
TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS)	41	5
BLANKS		46	15

NODC Code Tables Used with this Format -

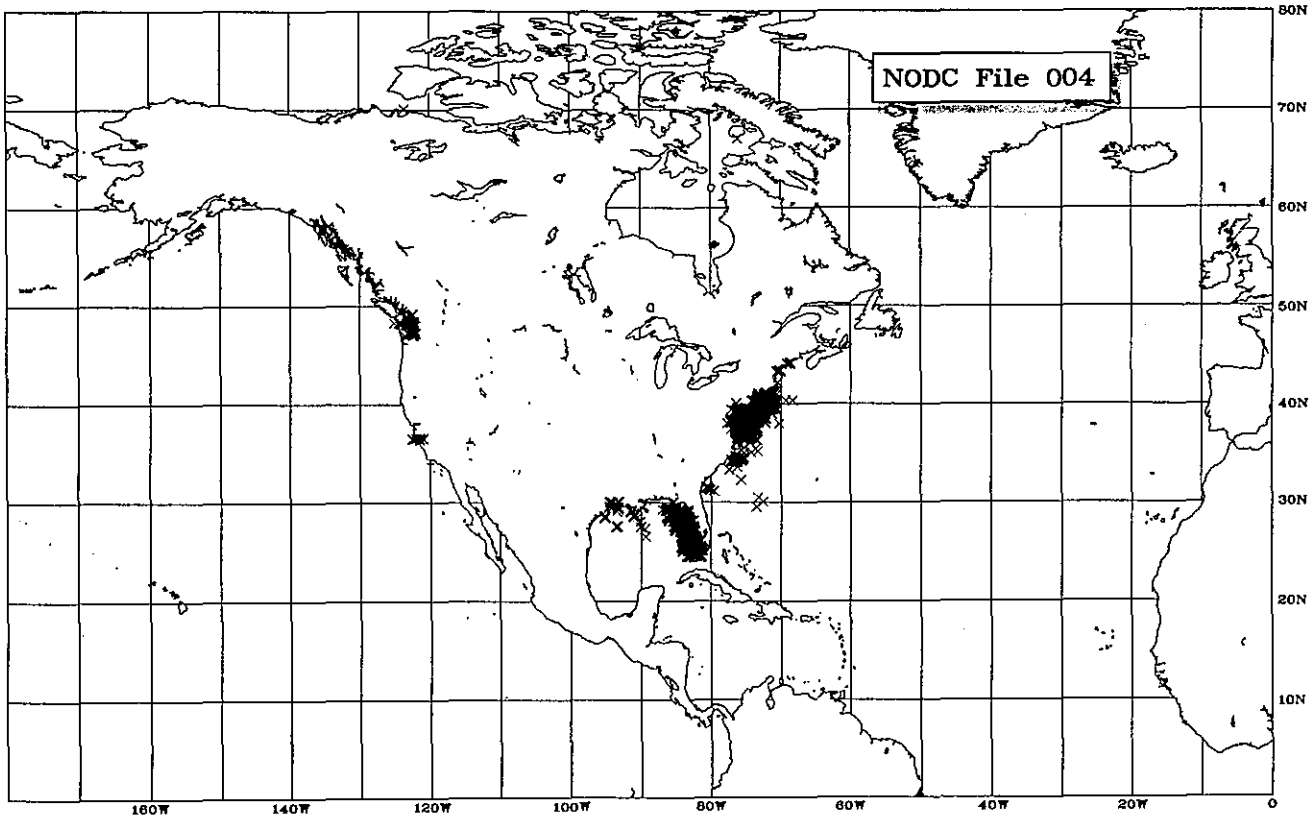
CODE NUMBER	CODE NAME
0218	DATA SOURCE

4.1.15 Water Physics and Chemistry (F004)

Geographic area: U.S. east coast, Gulf coast, S. California coast, Puget Sound

Time period: 1906 - 1985

This file contains data from measurements and analyses of physical and chemical characteristics of the water column. Among chemical parameters that may be recorded are salinity, pH, and concentration of oxygen, ammonia, nitrate, phosphate, chlorophyll, and suspended solids. Physical parameters that may be recorded include temperature, density (sigma-t), transmissivity, and current velocity (east-west and north-south components). Cruise and station information, including environmental conditions at the study site at the time of the observation, is also included.



File Structure -

Five 100-character records: (1) File Header Record, (2) First Station Header Record, (3) Second Station Header Record, (4) Data Record 1, and (5) Data Record 2.

File Format -

Water Physics and Chemistry (File 004)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '004'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
VESSEL	11-CHARACTER VESSEL NAME	11	11
CRUISE	SIX-CHARACTER ORIGINATOR'S CRUISE ID	22	6
CRUISE DATES	MM/DD/YY-MM/DD/YY - BEGIN-END DATES	28	17
SENIOR SCIENTIST	19-CHARACTER FIELD FOR SCIENTIST NAME	45	19
INVESTIGATOR	17-CHARACTER FIELD FOR RESPONSIBLE INSTITUTION	64	17
BLANKS		81	20
FIRST STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '004'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
SEQUENCE	XXX - THREE-CHARACTER SEQUENCE NUMBER	11	3
STATION	FIVE-CHARACTER STATION IDENTIFIER	14	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	19	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	25	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	26	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	33	1
TIME (GMT)	XXX - HOURS TO TENTHS	34	3
DATE	MM/DD/YY	37	8
BOTTOM	XXXXX - WATER DEPTH (METERS TO TENTHS)	45	5
NAVIGATION	TWO-CHARACTER CODE - USE NODC CODE 0085	50	2
METHOD	ONE-CHARACTER CODE - USE NODC CODE 0300	52	1
CABIN TEMPERATURE	XXX - DEG C TO TENTHS	53	3
BOX TEMPERATURE	XX - DEG C (WHOLE DEGREES)	56	2
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	58	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	59	10
MAXIMUM DEPTH	XXXXX-DEPTH OF DEEPEST OBSERVATION (METERS)	69	5
BOTTOM TYPE	ONE-CHARACTER CODE - USE NODC CODE 0103	74	1
BLANKS		75	26
SECOND STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '004'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
BAROMETER	XXX - MILLIBARS TO TENTHS	19	3
DRY BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	22	4
WET BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	26	4
WIND DIRECTION	TWO-CHARACTER CODE - USE NODC CODE NODC 0110	30	2
WIND SPEED	XX - KNOTS	32	2
SEA DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	34	2
SEA HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	36	1
SWELL DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	37	2
SWELL HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	39	1
WEATHER	ONE-CHARACTER CODE - USE NODC CODE 0108	40	1

CLOUD TYPE	ONE-CHARACTER CODE - USE NODC CODE 0053	41	1
CLOUD COVER	ONE-CHARACTER CODE - USE NODC CODE 0105	42	1
VISIBILITY	ONE-CHARACTER CODE - USE NODC CODE 0157	43	1
TRANSPARENCY	XXXX - SECCHI DISC DEPTH (METERS TO TENTHS)	44	4
TURBIDITY	ONE-CHARACTER CODE - USE NODC CODE 0094	48	1
WATER COLOR	TWO-CHARACTER CODE - USE NODC CODE 0051	49	2
BLANKS		51	50

DATA RECORD 1

NODC FILE NUMBER	ALWAYS '004'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
DEPTH	XXXX - SAMPLE DEPTH (METERS TO TENTHS)	19	4
TEMPERATURE	XXXXX - WATER TEMPERATURE (DEG C TO THOUSANDTHS)	23	5
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	28	5
SIGMA-T	XXXX (TO HUNDREDTHS)	33	4
TRANSMISSIVITY	XXX (PERCENT TO TENTHS)	37	3
PH	XXX (TO HUNDREDTHS)	40	3
EH	XXXX (TO HUNDREDTHS)	43	4
OXYGEN	XXXX - DISSOLVED OXYGEN (ML/L TO HUNDREDTHS)	47	4
AMMONIA	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	51	3
NITRITE	XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	54	3
NITRATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	57	4
SILICATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	61	4
PHOSPHATE	XXX (INORGANIC MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	65	3
SOLIDS	XXXX - SUSPENDED SOLIDS (MG/L TO HUNDREDTHS)	68	4
TURBIDITY	XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)	72	4
CHLOROPHYLL	XXXXX (MILLIGRAMS/CUBIC METER TO HUNDREDTHS)	76	5
LIGHT PENETRATION	XXX - PERCENT OF SURFACE LIGHT AT DEPTH (TO TENTHS)	81	3
PRODUCTIVITY	XXX - PRODUCTION RATE OF CARBON (GRAMS/CUBIC METER/HR)	84	3
TOTAL NITROGEN	XXX (MICROGRAM-ATOMS/LITER)	87	3
TOTAL PHOSPHATE	XXXX - PHOSPHATE FROM TOTAL SAMPLE, INCLUDING SEDIMENT (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	90	4
TOTAL FILTER PASSING PHOSPHATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	94	5
TITRATION ALKALINITY	XXX (MILLIEQUIVALENTS/LITER TO HUNDREDTHS) - THE NUMBER OF MILLIEQUIVALENTS OF HYDROGEN IONS NEUTRALIZED BY ONE LITER OF SAMPLE WATER	98	3

DATA RECORD 2

NODC FILE NUMBER	ALWAYS '004'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
DEPTH	XXXX - SEE RECORD '4'	19	4
TEMPERATURE	XXXXX - SEE RECORD '4'	23	5
SALINITY	XXXXX - SEE RECORD '4'	28	5
SIGMA-T	XXXX - SEE RECORD '4'	33	4
EAST-WEST CURRENT COMPONENT (U)	XXXXX (CM/SEC TO TENTHS)	37	5
NORTH-SOUTH CURRENT COMPONENT (V)	XXXXX (CM/SEC TO TENTHS)	42	5
TRANSMISSIVITY	XXX (PERCENT TO TENTHS)	47	3
PH	XXX (TO HUNDREDTHS)	50	3
OXYGEN	XXXX - SEE RECORD '4'	53	4
AMMONIA	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	57	3
NITRITE	XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	60	3
NITRATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	63	5
SILICATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	68	4
PHOSPHATE	XXX - SEE RECORD '4'	72	3
CHLOROPHYLL	XXXXX - SEE RECORD '4'	75	5
BLANKS		80	21

NODC Code Tables Used with this Format -

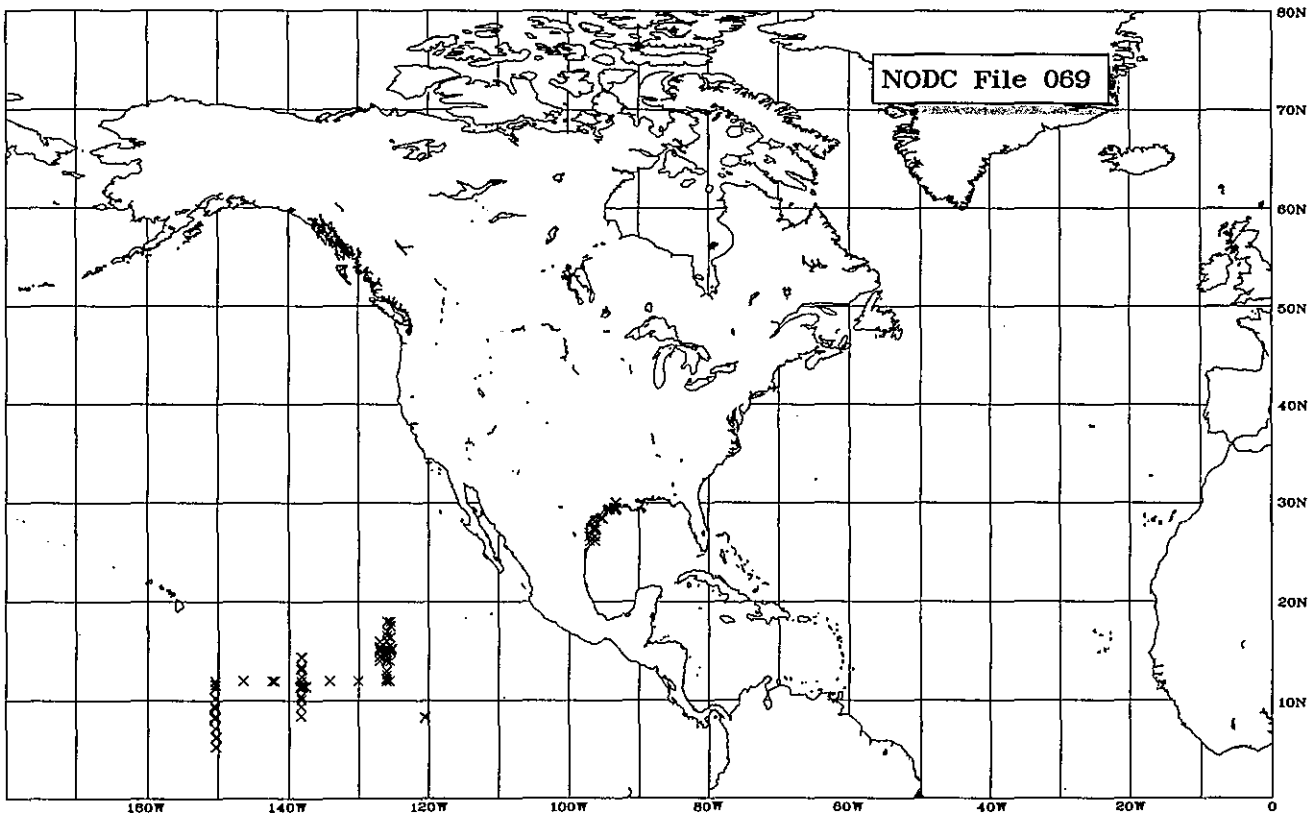
CODE NUMBER	CODE NAME
0053	CLOUD TYPE (WMO 0500)
0085	NAVIGATION
0094	TURBIDITY
0104	WAVE HEIGHT (WMO 1555)
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0110	WIND-WAVE DIRECTION
0157	VISIBILITY (WMO 4300)
0300	METHOD (004)

4.1.16 Marine Chemistry (F069)

Geographic area: U.S. Gulf coast, eastern equatorial Pacific

Time period: 1974 - 1982

This file contains data from chemical analyses of seawater samples. Cruise information, position, date, and time are reported for each station along with sample depth, temperature, salinity, and density (sigma-t). Chemical and biochemical parameters that may be reported include: dissolved oxygen, nitrate, nitrite, ammonia, inorganic phosphate, and silicate; dissolved organic carbon, particulate organic carbon, and particulate organic nitrogen; apparent oxygen utilization, percent oxygen saturation, adenosine triphosphate, total phaeophytin, and total chlorophyll; and total suspended matter, total recoverable petroleum hydrocarbons, and total resolved light hydrocarbons.



File Structure -

Six 80-character records: (1) File Header Record, (2) First Sample Header Record, (3) Data Record 1, (4) Data Record 2, (5) Data Record 3, and (6) Data Record 4.

File Format -

Marine Chemistry (F069)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
VESSEL	ELEVEN-CHARACTER FIELD FOR VESSEL NAME	11	11
CRUISE	SIX-CHARACTER ORIGINATOR'S CRUISE IDENTIFICATION (LEFT ALIGNED)	22	6
BEGIN CRUISE DATE	MM/DD/YY	28	8
BLANK		36	1
END CRUISE DATE	MM/DD/YY	37	8
SENIOR SCIENTIST	19-CHARACTER FIELD FOR SCIENTIST NAME	45	19
INVESTIGATOR/INSTITUTION	17-CHARACTER FIELD FOR INVESTIGATOR OR INSTITUTION NAME	64	17
FIRST SAMPLE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
SEQUENCE	XXX - ASCENDING NUMERIC	11	3
CAST NUMBER	THREE-CHARACTER STATION IDENTIFIER	14	3
NUMBER OF CASTS	SIX CHARACTERS USED TO REPRESENT THE NUMBER OF CASTS USED TO MAKE UP A STATION. EG., 35-37 REPRESENTS 3 CASTS	17	6
LATITUDE	DDMMX (DEGREES, MINUTES TO TENTHS)	23	5
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	28	1
LONGITUDE	DDDMMX (DEGREES, MINUTES TO TENTHS)	29	6
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	35	1
DATE (GMT)	YYMMDD	36	6
TIME (GMT)	XXX (HOURS TO TENTHS)	42	3
DEPTH TO BOTTOM	XXXX (WHOLE METERS)	45	4
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	49	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	50	10
BLANKS		60	21
DATA RECORD I			
NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE	SEE RECORD '2'	11	3
CAST NUMBER	SEE RECORD '2'	14	3
SAMPLE DEPTH	XXXX (WHOLE METERS)	17	4
TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	21	4
SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	25	4
SIGMA-T	XXXXX (TO THOUSANDTHS)	29	5
DISSOLVED OXYGEN	XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	34	5
NITRATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	39	4
NITRITE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	43	4
AMMONIA	XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	47	5
INORGANIC PHOSPHATE	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	52	4
SILICATE	XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	56	5
RELATIVE CHLOROPHYLL FLUORESCENCE	XXXX (TO HUNDREDTHS)	61	4

DISSOLVED ORGANIC CARBON	XXXX - UG C/L TO HUNDREDTHS	65	4
PARTICULATE ORGANIC CARBON	XXXX - UG C/L TO HUNDREDTHS	69	4
PARTICULATE ORGANIC NITROGEN	XXXX - UG N/L TO HUNDREDTHS	73	4
BLANKS		77	4

DATA RECORD II

NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
SEQUENCE	SEE RECORD '2'	11	3
CAST NUMBER	SEE RECORD '2'	14	3
DEPTH	XXXX (WHOLE METER	17	4
APPARENT OXYGEN UTILIZATION	XXXXX (MILLIGRAM-ATOMS/LITER TO THOUSANDTHS	21	5
PERCENT OXYGEN SATURATION	XXX (WHOLE PERCENT)	26	3
ELECTRON TRANSPORT SYSTEM	XXXXX (MICROLITERS O(2)/LITER/HOUR TO TEN THOUSANDTHS)	29	5
ADENOSINE TRIPHOSPHATE	XXXXX (NANOGRAM/L TO HUNDREDTHS)	34	5
NANOPLANKTON CARBON UPTAKE	XXXXX (MILLIGRAMS C/CUBIC M/HOUR TO TEN THOUSANDTHS)	39	5
TOTAL PHAEOPHYTIN	XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)	44	5
NANOPLANKTON CHLOROPHYLL	XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)	49	5
NANOPLANKTON PHAEOPHYTIN	XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)	54	5
TOTAL CARBON UPTAKE	XXXXX (MILLIGRAMS C/CUBIC M/DAY TO TEN THOUSANDTHS)	59	5
TOTAL CHLOROPHYLL	XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)	64	5
DRY WEIGHT OF PARTICULATE MATTER	XXXXX (MICROGRAMS/LITER TO HUNDREDTHS)	69	5
NEPHELS	XXXXXXX (KILOHERTZ TO HUNDREDTHS)	74	7

DATA RECORD III

NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
SEQUENCE	SEE RECORD '2'	11	3
CAST NUMBER	SEE RECORD '2'	14	3
SAMPLE DEPTH	XXXXX (M TO TENTHS)	17	5
TEMPERATURE	XXXX (DEG C TO HUNDREDTHS)	22	4
SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	26	4
PH	XXXX (TO THOUSANDTHS)	30	4
DISSOLVED OXYGEN GAS	XXXXXX (MILLILITERS/LITER TO THOUSANDTHS)	34	6
DISSOLVED ORGANIC CARBON	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	40	6
PARTICULATE ORGANIC CARBON	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	46	6
PARTICULATE ORGANIC NITROGEN	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	52	6
TOTAL SUSPENDED MATTER	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	58	6
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	64	6
TOTAL RESOLVED LIGHT HYDROCARBONS	XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)	70	6
BLANKS		76	5

DATA RECORD IV

NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '6'	10	1
SEQUENCE	SEE RECORD '2'	11	3
CAST NUMBER	SEE RECORD '2'	14	3
SAMPLE DEPTH	XXXXX - M TO TENTHS	17	5
NITRATE	XXXXXX - MG/L TO THOUSANDTHS	22	6
NITRITE	XXXXXX - MG/L TO THOUSANDTHS	28	6
AMMONIA	XXXXXX - MG/L TO THOUSANDTHS	34	6
SILICON DIOXIDE	XXXXXX - MG/L TO THOUSANDTHS	40	6
TOTAL PHOSPHORUS IN PHOSPHATE	XXXXXX - MG/L TO THOUSANDTHS	46	6
ORGANIC PHOSPHORUS IN PHOSPHATE	XXXXXX - MG/L TO THOUSANDTHS	52	6
CHLOROPHYLL A	XXXXXX - MG/M3 TO THOUSANDTHS	58	6
PHAEOPHYTIN A	XXXXXX - MG/M3 TO THOUSANDTHS	64	6
SULFATE	XXXXXX - MG/L TO THOUSANDTHS	70	6

NITRATE-NITRITE RATIO	XXXX - TO HUNDREDTHS	76	4
BLANK		80	1

TEXT RECORD

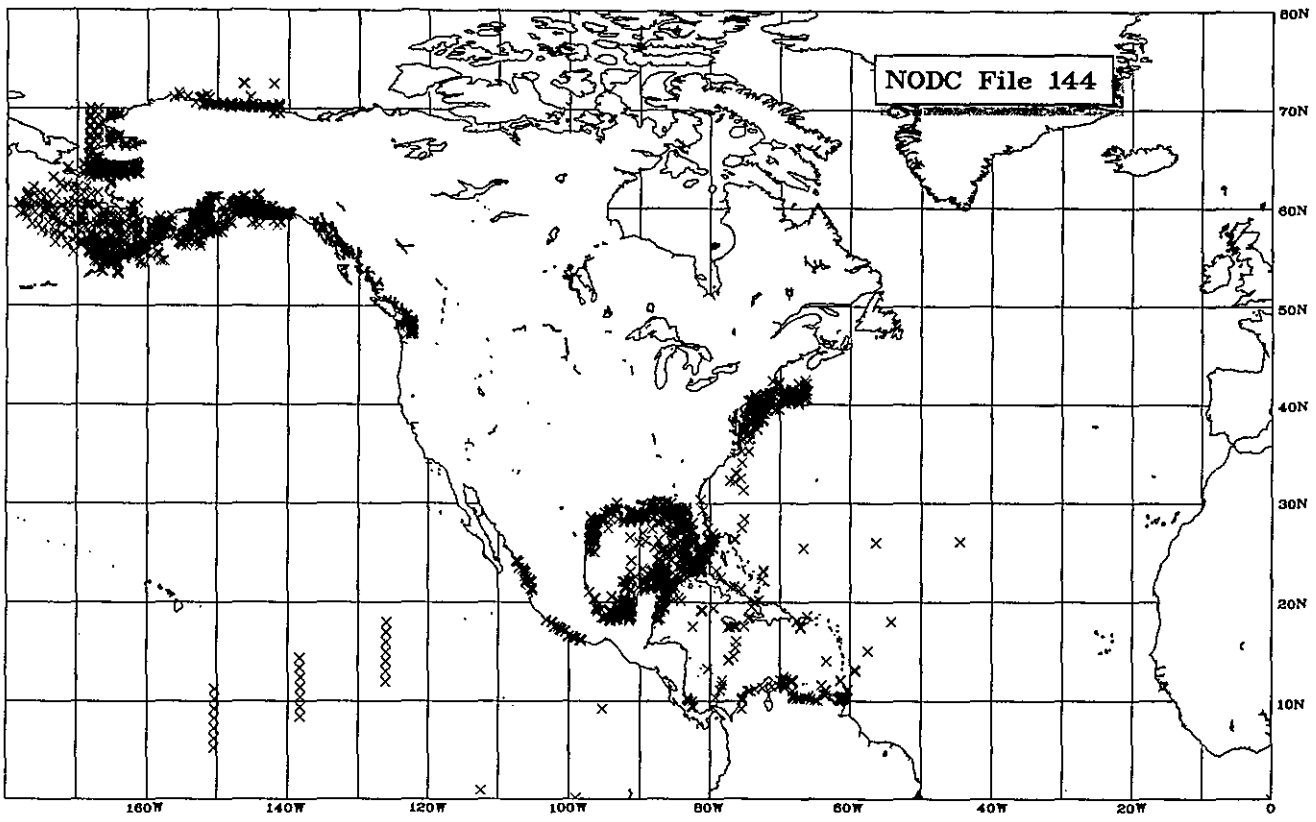
NODC FILE NUMBER	ALWAYS '069'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '7'	10	1
SEQUENCE	SEE RECORD '2'	11	3
CAST NUMBER	SEE RECORD '2'	14	3
TEXT	TEXT	17	64

4.1.17 Marine Toxic Substances and Pollutants (F144)

Geographic area: U.S. coastal waters, Gulf of Mexico, Caribbean Sea, Pacific coast of Mexico, eastern equatorial Pacific

Time period: 1965 - 1987

This file contains data on concentrations of toxic substances and other pollutants in the marine environment, plus water chemistry data. The data derive from laboratory analyses of samples of water, sediment, or marine organisms. Samples may have been collected near marine discharge sites or during monitoring surveys of large ocean areas. Field observations of tar balls may also be reported. Survey information includes platform type, start and end dates, and investigator and institution. If data are collected near a discharge site, discharge locations, depth, distance to shore, average volume, and other characteristics are reported. Position, date, time, and environmental conditions are reported for each sample station. Environmental data may include meteorological and physical oceanographic parameters. Sample characteristics, collection methods, and laboratory techniques may also be reported. The data record comprises concentration values (or a code to indicate trace amounts) for each chemical substance analyzed. Chemical substances are identified by codes based on the registry numbers assigned by the Chemical Abstracts Service (CAS) of the American Chemical Society (see Section 9.4). Marine organisms from which samples have been taken are identified using the NODC Taxonomic Code. A text record is available for optional comments.



File Structure:

Eight 80-character records: (1) Survey Header Record, (2) Effluent Record, (3) Station Header Record, (4) Environment Record, (5) Sample Header Record, (6) Data Record, (7) Beach Tar Record, and (8) Text Record.

File Format:

Marine Toxic Substances and Pollutants (File 144)

PARAMETER	DESCRIPTION	SC	FL
SURVEY HEADER RECORD			
NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A' - THIS RECORD IS MANDATORY AND SHOULD AGREE WITH ANY DOCUMENTATION SUBMITTED WITH THE DIGITAL DATA. THIS RECORD SHOULD BE SUBMITTED ONLY ONCE FOR EACH DISCRETE DATA SET (SURVEY OR FILE ID).	10	1
BLANKS		11	5
PLATFORM	11-CHARACTER FIELD TO INDICATE THE SURVEY PLATFORM NAME	16	11
SURVEY IDENTIFICATION	SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR TO IDENTIFY THE SPECIFIC SURVEY	27	6
SURVEY DATE - FROM	YYMMDD - START DATE OF SURVEY	33	6
SURVEY DATE - TO	YYMMDD - END DATE OF SURVEY	39	6
INVESTIGATOR/DATA SOURCE/MUNICIPALITY/ CONTRACTOR	15-CHARACTER FIELD TO IDENTIFY SOURCE OF DATA OR MUNICIPALITY FOR THOSE STUDIES CONCERNED WITH EFFLUENTS OR OTHER DISCHARGE SOURCES IN THE MARINE ENVIRONMENT	45	15
INSTITUTION OR AGENCY	15-CHARACTER FIELD FOR INVESTIGATOR'S INSTITUTION NAME	60	15
BLANKS		75	6
EFFLUENT RECORD			
NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B' - THIS RECORD IS DESIGNED PRIMARILY TO REPORT INFORMATION TO SUPPORT THE EPA 301(H) PROGRAM AND MAY BE OPTIONAL FOR OTHER STUDIES. ONE RECORD 'B' SHOULD BE SUBMITTED FOR EACH DISCHARGE SITE OR EFFLUENT. FACILITIES WITH MULTIPLE EFFLUENTS THEREFORE SHOULD REPORT RECORD 'B' INFORMATION FOR EACH EFFLUENT SOURCE.	10	1
BLANKS		11	5
EFFLUENT IDENTIFIER	TWO-CHARACTER FIELD TO IDENTIFY A SPECIFIC EFFLUENT SOURCE - USED PRIMARILY TO DIFFERENTIATE MULTIPLE DISCHARGE SOURCES FOR ONE MUNICIPALITY OR FACILITY. IDENTIFIERS ARE DESIGNATED BY THE MUNICIPALITY OR INVESTIGATOR	16	2
POINT OF DISCHARGE:	THIS LOCATION IS TO REPRESENT THE MIDPOINT OF THE ZONE OF INITIAL DILUTION (ZID) FOR EPA 301(H) DATA AND THE LOCATION OF THE EFFLUENT SOURCE IN THE MARINE ENVIRONMENT FOR OTHER DATA SUBMISSIONS:		
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	18	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	24	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	25	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	32	1
DISTANCE FROM SHORE TO DISCHARGE POINT	XXXXXX - DISTANCE (KILOMETERS TO THOUSANDTHS)	33	6
DEPTH OF DISCHARGE	XXXX - THE DEPTH AT THE POINT OF DISCHARGE (MIDPOINT OF ZID) (WHOLE METERS)	39	4
AVERAGE DISCHARGE FOR SURVEY PERIOD	XXXXX - AVERAGE DISCHARGE (MILLION GALLONS/DAY (MGD) TO HUNDREDTHS) - THIS SHOULD REFER TO THE AVERAGE DURING THE SURVEY PERIOD OR SEASON - DETAILED DISCHARGE INFORMATION CAN BE SUBMITTED WITH EPA PERMIT APPLICATIONS, ETC.	43	5

AREA OF ZID	XXXXX - AREA OF ZONE OF INITIAL DILUTION AS DEFINED BY EPA REGULATIONS WHICH WILL VARY WITH EACH SITE DEPENDING ON THE PHYSICAL CHARACTERISTICS OF THE DISCHARGE PLUME AND THE DEPTH OF THE WATER - EXPRESSED IN SQUARE KILOMETERS TO HUNDREDTHS	48	5
DISCHARGE DESCRIPTION	ONE-CHARACTER CODE TO DESCRIBE THE GENERAL DESCRIPTION OF THE DISCHARGE AREA AS REPORTED IN STANDARD FORM A - EPA FORM 7550-22 - USE NODC CODE 0346	53	1
PERIODIC DISCHARGE	ONE-CHARACTER CODE TO INDICATE IF EFFLUENT IS SUBJECT TO PERIODIC FLUCTUATIONS IN DISCHARGE - USE NODC CODE 0117	54	1
WET OR DRY PERIOD	ONE-CHARACTER CODE TO INDICATE WHETHER SURVEY WAS CONDUCTED IN WET OR DRY SEASON - USE NODC CODE 0347	55	1
PRIMARY INDUSTRY	TWO-CHARACTER CODE - AN ABBREVIATED VERSION OF THE STANDARD INDUSTRIAL CLASSIFICATION CODE (S.I.C.) AS PREPARED BY THE TECHNICAL COMMITTEE ON INDUSTRIAL CLASSIFICATION IN 1972. THE PRIMARY USE OF THE ORIGINAL FOUR-DIGIT CODES IS FOR BUSINESS ACTIVITIES. FOR THIS PARTICULAR FORMAT, THE INTENT IS TO IDENTIFY THE GENERAL OR PRIMARY SOURCE OF TOXIC SUBSTANCES OR CONTAMINANTS IN THE MARINE ENVIRONMENT AS RELATED TO A SPECIFIC EFFLUENT SOURCE. FOR EPA 301(H) STUDIES, THE CODE USED FOR MUNICIPAL SERVICES, WHICH INCLUDES SEWAGE AND SANITARY SYSTEMS, IS 49 - USE NODC CODE 0375	56	2
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	58	10
BLANKS		68	13

STATION HEADER RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C' - THIS RECORD IS MANDATORY FOR POSITION AND DATES. INDIVIDUAL RECORD SHOULD BE SUBMITTED FOR EACH SAMPLING STATION. INFORMATION ON ZID IS REQUIRED ONLY FOR EPA 301(H) DATA SUBMISSIONS.	10	1
STATION NUMBER	FIVE-CHARACTER FIELD - MUST BE UNIQUE FOR EACH DATA SET (SURVEY PERIOD OR FILE ID). IF THE STATION IS REOCCUPIED DURING THE SAME SURVEY (FILE ID), THE STATION NUMBER MAY BE RETAINED BUT SHOULD BE PRECEDED BY SOME ALPHA-NUMERIC CHARACTER. FOR SUBSEQUENT SURVEYS (DIFFERENT FILE ID'S), THE ORIGINAL STATION NUMBERS AND THE SAME REOCCUPIED NUMBERING SCHEME MAY BE USED AGAIN. THE ALPHA-NUMERIC PREFIX IS NECESSARY TO INSURE THAT ALL DATA RELATED TO A SPECIFIC MEASUREMENT IS CORRECTLY ASSOCIATED WITH THE EXACT TIME AND PLACE OF THE STATION. WATER, BIOTA AND SEDIMENT SAMPLES MAY BE INCLUDED WITHIN THE SAME STATION.	11	5
[STATION LOCATION - POSITIONS SHOULD BE REPORTED TO THE NEAREST SECOND IF POSSIBLE - ADDITIONAL INFORMATION SUCH AS LOCATION WITHIN A SECTION OF A RIVER OR ESTUARY MAY BE INCLUDED AS A TEXT RECORD.]			
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W' (NODC CODE 0501)	30	1
DATE (GMT)	YYMMDD - DATE OF MEASUREMENT	31	6
TIME (GMT)	HHMM (HOURS AND MINUTES)	37	4
EFFLUENT IDENTIFIER	TWO-CHARACTER FIELD TO LINK EFFLUENT DATA DESCRIBED IN RECORD 'B'	41	2
STATION INSIDE ZID	ONE-CHARACTER CODE TO INDICATE IF STATION IS INSIDE ZONE OF INITIAL DILUTION OF NEAREST EFFLUENT (PRIMARILY FOR 301(H) DATA SUBMISSIONS) - USE NODC CODE 0117	43	1
DISTANCE TO NEAREST ZID OR EFFLUENT	XXXXXX - DISTANCE FROM STATION TO MIDPOINT OF NEAREST ZID AS REQUIRED FOR 301(H) SUBMISSIONS OR TO EFFLUENT SOURCE (OR MIDPOINT OF SPILL SOURCE) FOR OTHER STUDIES (KM TO THOUSANDTHS)	44	6
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	50	10
BLANKS		60	18
SEQUENCE NUMBER	XXX - GENERALLY '001' UNLESS THE STATION DATA IS PRECEDED BY TEXT RECORDS. SEQUENCE NUMBERS ARE ASCENDING FOR ALL RECORDS WITHIN A STATION. A NEW STATION SHOULD BEGIN WITH A NEW SEQUENCE SERIES STARTING AGAIN WITH '001'.	78	3

ENVIRONMENT RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D' - INDIVIDUAL ENVIRONMENTAL PARAMETERS ARE OPTIONAL AND ARE DEPENDENT ON REQUIREMENTS DESIGNATED BY EACH PROJECT	10	1
STATION NUMBER	SEE RECORD 'C'	11	5
BOTTOM DEPTH	XXXX - DEPTH (WHOLE METERS)	16	4
BOTTOM TYPE	TWO-CHARACTER CODE - USE NODC CODE 0077	20	2
CURRENT SPEED	XXX - SPEED OF SURFACE CURRENT (METERS PER SECOND TO TENTHS)	22	3
CURRENT DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	25	2
WIND SPEED	XX - SURFACE WIND SPEED (WHOLE METERS PER SECOND)	27	2
WIND DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	29	2
SEA STATE	ONE-CHARACTER CODE - USE NODC CODE 0109	31	1
TIDE HEIGHT	XXX - HEIGHT OF TIDE (METERS TO TENTHS)	32	3
TIDE STAGE	ONE-CHARACTER CODE - USE NODC CODE 0154	35	1
DEPTH OF THERMOCLINE	XXX - DEPTH OF THERMOCLINE OR MIXED LAYER (WHOLE METERS)	36	3
TRANSPARENCY	XXX - SECCHI DISK DEPTH (METERS TO TENTHS)	39	3
AIR TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	42	4
WATER SURFACE TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	46	4
WATER SURFACE SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	50	4
WAVE HEIGHT	TWO-CHARACTER CODE - USE NODC CODE 0362	54	2
WAVE PERIOD	XX - AVERAGE WIND/WAVE PERIOD TO NEAREST SEC (WHOLE SECONDS)	56	2
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	58	1
BLANKS		59	19
SEQUENCE NUMBER	SEE RECORD 'C'	78	3

SAMPLE HEADER RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'E' - THIS RECORD IS MANDATORY - SPECIFIC PARAMETER ENTRIES ARE DEPENDENT ON THE TYPE OF SAMPLE BEING REPORTED. MULTIPLE RECORDS CAN BE INCLUDED FOR EACH STATION NUMBER WHERE DIFFERENT GEAR ARE USED FOR DIFFERENT SAMPLES, DIFFERENT SPECIES ARE IDENTIFIED, DIFFERENT ORGAN SAMPLES ANALYZED, ETC.	10	1
STATION NUMBER	SEE RECORD 'C'	11	5
SAMPLE NUMBER	XXX - USED TO DIFFERENTIATE SAMPLES WITHIN A STATION	16	3
REPLICATE NUMBER	X - USED TO DIFFERENTIATE REPLICATES WITHIN A STATION OR SAMPLE	19	1
SPECIMEN NUMBER	XXX - USED TO IDENTIFY INDIVIDUAL OR GROUPS OF SPECIMENS WITHIN A SAMPLE	20	3
SAMPLE TYPE	ONE-CHARACTER CODE TO IDENTIFY GENERAL SAMPLE TYPES - USE NODC CODE 0210	23	1
SAMPLE DEPTH - UPPER	XXXXXX - USE FOR DISCRETE WATER SAMPLE DEPTH, UPPER DEPTH OF SEDIMENT CORE SAMPLES OR UPPER DEPTH OF BIOLOGICAL TOWS (METERS TO HUNDREDTHS)	24	6
SAMPLE DEPTH - LOWER	XXXXXX - USE ONLY FOR LOWER DEPTH OF SEDIMENT CORE SAMPLES OR LOWER DEPTH OF BIOLOGICAL TOWS (METERS TO HUNDREDTHS)	30	6
SAMPLE ELEVATION - INTERTIDAL	XXX - USE FOR INTERTIDAL OR BEACH SAMPLES - PRECEDE ELEVATION VALUES WITH A MINUS SIGN FOR SAMPLES COLLECTED BELOW WATER LEVEL - REFERENCE TO MEAN LOW WATER (METERS TO TENTHS). VALUE REPRESENTS THE LOWEST ELEVATION WHERE COMPOSITE SAMPLES ARE CONSIDERED.	36	3
SPHERE	ONE-CHARACTER CODE TO IDENTIFY THE SPHERE FROM WHICH THE SAMPLE WAS COLLECTED - USE NODC CODE 0093	39	1
METHOD	TWO-CHARACTER CODE TO IDENTIFY THE CHEMICAL ANALYSIS METHOD USED FOR ANALYZING THE SAMPLE. THE CODE ENTRY SHOULD REPRESENT THE FINAL ANALYSIS METHOD OR COMBINED METHODS AS LISTED IN THE CODE GROUP - ADDITIONAL COMBINATION METHODS MAY BE REQUESTED FOR INCLUSION IN THE CODE GROUP (MORE DETAILED DISCUSSIONS OF ANALYSIS METHODS MAY BE INCLUDED IN THE DDF) - USE NODC CODE 0350	40	2

GEAR TYPE	TWO-CHARACTER CODE TO IDENTIFY GEAR TYPE USED TO COLLECT THE SAMPLE - GEAR TYPES ARE IDENTIFIED FOR GENERAL CATEGORIES ONLY. MORE SPECIFIC INFORMATION ON GEAR TYPES MAY BE INCLUDED IN THE DDF SUBMITTED WITH EACH DATASET - USE NODC CODE 0376	42	2
TYPE OF TOW	ONE-CHARACTER CODE TO IDENTIFY BIOLOGICAL TOW USED IN COLLECTING THE SAMPLE - USE NODC CODE 0314	44	1
TAXONOMIC CODE	12-DIGIT CODE - USE NODC TAXONOMIC CODE - IF SPECIES CODE IS NOT AVAILABLE, CONTACT NODC FOR CODE ASSIGNMENT - DO NOT INDEPENDENTLY ASSIGN CODES TO NEW SPECIES OR SPECIES WHOSE CODES HAVE NOT YET BEEN ASSIGNED	45	12
NUMBER OF INDIVIDUALS	XXXXX - NUMBER OF INDIVIDUALS IN EACH SAMPLE OR NUMBER OF GRABS, ETC FOR COMPOSITE SAMPLES	57	5
PREDOMINANT SEX	ONE-CHARACTER CODE TO IDENTIFY SEX OR PREDOMINANT SEX OF SAMPLE WHERE POSSIBLE - USE NODC CODE 0101	62	1
LIFE STAGE	ONE-CHARACTER CODE TO IDENTIFY PREDOMINANT LIFE STAGE OF SAMPLE WHERE POSSIBLE - USE NODC CODE 0148	63	1
MATERIAL ANALYZED	TWO-CHARACTER CODE TO INDENTIFY THE ORGAN OR PORTION OF THE SAMPLE ANALYZED - USE NODC CODE 0037	64	2
BIOLOGICAL NICHE	TWO-CHARACTER CODE TO IDENTIFY THOSE SPECIMENS THAT CANNOT BE TAXONOMICALLY CODED TO SPECIES LEVELS - USE NODC CODE 0351	66	2
WET WEIGHT OF ANALYSIS ALIQUOT	XXXXXXX - WET WEIGHT (GRAMS TO HUNDREDTHS)	68	7
DRY WEIGHT(PERCENT)	XXX - PERCENT OF TOTAL SAMPLE REMAINING AFTER DRYING - (PERCENT BY WEIGHT TO TENTHS)	75	3
SEQUENCE NUMBER	XXX - SEE RECORD 'C'	78	3

DATA RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F' - THIS RECORD CAN BE USED TO REPORT UP TO THREE SUBSTANCES PER RECORD - MULTIPLE DATA RECORDS MAY BE INCLUDED FOR EACH SAMPLE FOR REPORTING TOXICS, CHEMICAL COMPOUNDS OR OTHER SUBSTANCES IN THE MARINE ENVIRONMENT. DATA IN EACH RECORD SHOULD REFER TO RESULTS FROM THE SAME ANALYTICAL METHOD, GEAR TYPE, ETC FOR A SINGLE SAMPLE AS SPECIFIED IN RECORD 'E'	10	1
STATION NUMBER	SEE RECORD 'C'	11	5
SAMPLE NUMBER	SEE RECORD 'E'	16	3
REPLICATE NUMBER	SEE RECORD 'E'	19	1
SPECIMEN NUMBER	SEE RECORD 'E'	20	3
PARAMETER CODE(1)	NINE-CHARACTER CODE TO IDENTIFY PARAMETER MEASURED; ENTRIES MUST BE LEFT JUSTIFIED - USE CAS CODE FILE. IF PARAMETER CODE IS NOT LISTED IN FILE, CONTACT THE NODC FOR CODE ASSIGNMENT OR CONFIRMATION - DO NOT INDEPENDENTLY ASSIGN CODES WITHOUT CONTACTING NODC FOR PRIOR APPROVAL.	23	9
MEASUREMENT CODE(1)	ONE-CHARACTER CODE TO DESCRIBE THE WEIGHT AND/OR VOLUME COMBINATION OR RADIOACTIVITY UNITS OR TO INDICATE A UNITLESS MEASUREMENT - USE NODC CODE 0377	32	1
TRACE CODE(1)	ONE CHARACTER CODE TO INDICATE TRACE OR OTHER UNQUANTIFIABLE VALUES FOR A PARAMETER. IF A 'N' OR 'T' CODE IS ENTERED, THEN THE CONCENTRATION AND EXPONENT FIELDS MUST BE LEFT BLANK FOR THAT PARAMETER. IF AN 'L' CODE IS ENTERED, THE CONCENTRATION AND EXPONENT FIELDS SHOULD CONTAIN THE LOWER LIMIT OF DETECTION. USE NODC CODE 0379.	33	1
CONCENTRATION(1)	XXXX - CAN BE REPORTED FOR UP TO FOUR SIGNIFICANT DIGITS. DO NOT ENTER A VALUE OF ZERO IN THIS FIELD - IF SUCH IS THE CASE LEAVE BLANK. USE EXPONENT FIELD (COLUMNS 38-39) TO IDENTIFY THE POSITION OF THE DECIMAL POINT. UNITS MUST BE IN:	34	1

PPM	FOR WT/WT OR VOL/VOL
MICROGM/ML	FOR WT/VOL
MICROLITER/GM	FOR VOL/WT
MG/SQ. METER	FOR WT/AREA
MICROCURIES/ML	FOR ACTIVITY/VOL
MICROCURIES/GM	FOR ACTIVITY/WT
DEG C	FOR TEMPERATURE
UNITLESS	FOR PURE NUMBERS OR RATIOS

[NOTE - WHERE APPLICABLE, CONCENTRATIONS MUST BE EXPRESSED IN TERMS OF DRY WEIGHT OF SAMPLE]

EXPONENT(1)	XX - TO EXPRESS POSITION OF DECIMAL POINT. SIGN (+ OR -) IS TO BE IN COLUMN 38 FOLLOWED BY THE EXPONENT VALUE IN COLUMN 39. IF EXPONENT IS ZERO, SIGN MUST BE LEFT BLANK. A ZERO EXPONENT INDICATES PARTS PER MILLION. SINCE CONCENTRATION VALUES ARE REPORTED IN PARTS PER MILLION, THE EXPONENT VALUE MUST REFLECT THE VARIANCE OF THE CONCENTRATION FROM PPM. THUS, A VALUE OF 15 PPM IS REPORTED AS 0015 0 AND 15 PPB AS 0015-3. SEE EX.1 - EX.8 BELOW.	38	2
PARAMETER CODE(2)	NINE-CHARACTER CODE - SEE ABOVE	40	9
MEASUREMENT CODE(2)	ONE-CHARACTER CODE - SEE ABOVE	49	1
TRACE CODE(2)	ONE-CHARACTER CODE - SEE ABOVE	50	1
CONCENTRATION(2)	XXXX - SEE ABOVE	51	4
EXPONENT(2)	XX - SEE ABOVE	55	2
PARAMETER CODE(3)	NINE-CHARACTER CODE - SEE ABOVE	57	9
MEASUREMENT CODE(3)	ONE-CHARACTER CODE - SEE ABOVE	66	1
TRACE CODE(3)	ONE-CHARACTER CODE - SEE ABOVE	67	1
CONCENTRATION(3)	XXXX - SEE ABOVE	68	4
EXPONENT(3)	XX - SEE ABOVE	72	2
BLANKS		74	4
SEQUENCE NUMBER	SEE RECORD 'C'	78	3

SEVERAL EXAMPLES FOR CODING THE CONCENTRATIONS OF SPECIFIC SUBSTANCES FOR THIS RECORD FORMAT ARE:

EX. 1 PARAMETER IS ZINC AT A CONCENTRATION OF 123 MICROGRAMS/GM (=PPM). MEASUREMENT CODE IS B (WT/WT) AND TRACE CODE FIELD IS BLANK.
CODE AS S7440666_ B_ _ 123_ 0

EX. 2 PARAMETER IS A CHEMICAL COMBINATION, ETHANE + ETHYLENE, AT A CONCENTRATION OF 123 X 10**-2 NANOLITERS/LITER. THE CONCENTRATION IN PPM IS 123 X 10**-5 MICROLITERS/LITER. MEASUREMENT CODE IS D (VOL/VOL) AND TRACE CODE FIELD IS BLANK.
CODE AS YEPEY_ _ _ _ D_ _ 123-5

EX. 3 PARAMETER IS STRONTIUM-90 AT AN ACTIVITY OF 1.2 X 10**-10 CURIES/ML. THE CONCENTRATION IN MICROCURIES/ML IS 1.2 X 10**-7. MEASUREMENT CODE IS E (ACT/VOL) AND TRACE CODE FIELD IS BLANK.
CODE AS R10098972E_ _ _ 12-3

EX. 4 PARAMETER IS TEMPERATURE AT 12.34 DEG C. MEASUREMENT CODE IS W AND TRACE CODE FIELD IS BLANK.
CODE AS WTEMP_ _ _ _ W_ 1234-2

EX. 5 PARAMETER IS TOTAL SUSPENDED MATTER AT A CONCENTRATION OF 1.23 GRAMS/L. CONCENTRATION IN MICROGRAMS/ML IS 1.23 X 10**3. MEASUREMENT CODE IS A (WT/VOL) AND TRACE CODE FIELD IS BLANK.
CODE AS YTSM_ _ _ _ _ A_ _ 123+1

EX. 6 PARAMETER IS PH AT 7.8. MEASUREMENT CODE IS N (UNITLESS, PURE NUMBER) AND TRACE CODE FIELD IS BLANK.
CODE AS XPH_ _ _ _ _ _ N_ _ _ 78-1

EX. 7 PARAMETER IS ANTHRACENE IN SEDIMENT AT A CONCENTRATION BELOW INSTRUMENT DETECTION. THE LIMIT OF INSTRUMENT DETECTION IS 2 PPB OR 2 X 10**-3 PPM. THE MEASUREMENT CODE IS B (WT/WT) AND THE TRACE CODE IS L (LOWER LIMIT OF METHODOLOGY).
CODE AS T120127_ _ BL_ _ _ 2-3

EX. 8 PARAMETER IS DISSOLVED OXYGEN AT A TRACE CONCENTRATION ABOVE OR NEAR THE LEVEL OF INSTRUMENT DETECTION BUT NOT QUANTIFIABLE. MEASUREMENT CODE FIELD IS BLANK AND TRACE CODE IS T (TRACE AMOUNT). CONCENTRATION IS BLANK.
CODE AS YDO_ _ _ _ _ _ _ T_ _ _ _ _ _

BEACH TAR RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'G' - THIS RECORD IS USED TO REPORT BEACH CHARACTERISTICS AND OTHER SUPPORTING INFORMATION FOR RELATED TAR SAMPLES REPORTED IN RECORD 'F'	10	1
STATION NUMBER	SEE RECORD 'C'	11	5
SAMPLE NUMBER	SEE RECORD 'E'	16	3
BLANK		19	1
TIME OF LOW TIDE (GMT)	HHMM (HOURS AND MINUTES)	20	4
DISTANCE BETWEEN HIGH AND LOW TIDE	XXX - HORIZONTAL DISTANCE (METERS)	24	3
WATERLINE TO END OF SAMPLING DISTANCE	XXX - HORIZONTAL DISTANCE INLAND BETWEEN WATERLINE AND END OF SAMPLING - DISTANCE IN METERS	27	3
LENGTH OF SHOREFRONT	XXX - LENGTH OF SAMPLE AREA ALONG SHORE (METERS)	30	3
AREA SAMPLED	XXXXX - SAMPLE AREA (SQUARE METERS)	33	5

	**NOTE - EITHER WATERLINE DISTANCE AND LENGTH OF SHOREFRONT OR AREA SAMPLED MUST BE REPORTED TO PERMIT CONCENTRATION OF BEACH TAR TO BE CALCULATED.		
BEACH STATUS	ONE-CHARACTER CODE USED TO DESCRIBE GENERAL STATUS OF SAMPLE SITE - USE NODC CODE 0398	38	1
SEASHORE SURFACE	ONE-CHARACTER CODE TO DESCRIBE SAMPLE SITE SURFACE - USE NODC CODE 0281	39	1
PREVAILING WIND	ONE-CHARACTER CODE TO INDICATE PREVAILING DIRECTION OF WIND AT THE SAMPLE SITE AT TIME OF COLLECTION - USE NODC CODE 0399	40	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	41	10
BLANKS		51	27
SEQUENCE NUMBER	SEE RECORD 'C'	78	3

TEXT RECORD

NODC FILE NUMBER	ALWAYS '144'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'T' - MAY BE USED TO COMMENT ON SURVEY OPERATIONS OR ON SPECIFIC DATA ENTRIES, ANALYTICAL METHODS, ETC AND MAY BE LOCATED ANYWHERE WITHIN A DATA SET FOLLOWING RECORD 'B' OR RECORD 'B' IF NO RECORD 'B' SUBMITTED	10	1
STATION NUMBER	SEE RECORD 'C'	11	5
SAMPLE NUMBER	SEE RECORD 'E'	16	3
REPLICATE NUMBER	SEE RECORD 'E'	19	1
SPECIMEN NUMBER	SEE RECORD 'E'	20	3
TEXT	55-CHARACTER FIELD FOR COMMENTS	23	55
SEQUENCE NUMBER	XXX - SHOULD BE NUMBERED IN ASCENDING ORDER TO BE SORTED WITHIN A DATA SET	78	3

NODC Code Tables Used with this Format -

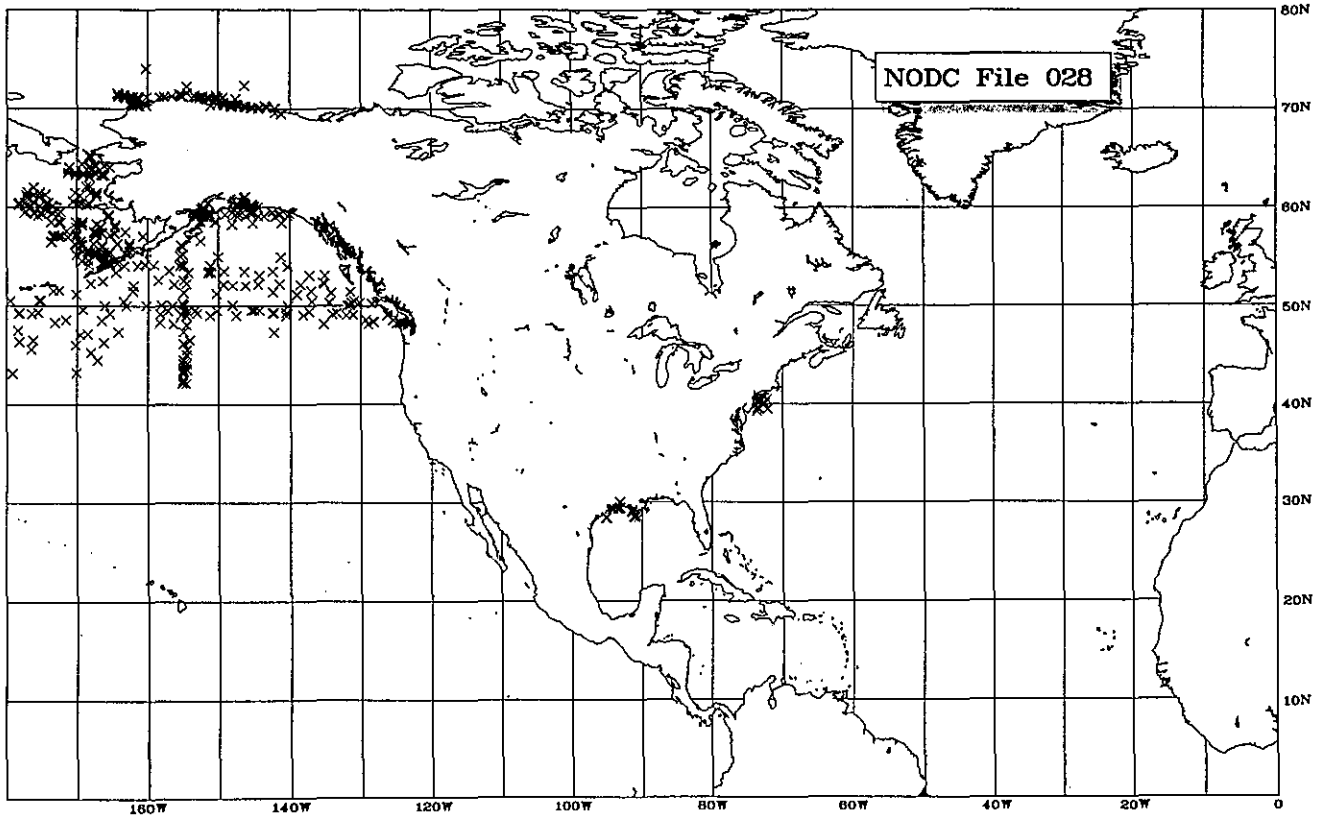
CODE NUMBER	CODE NAME
0037	MATERIAL ANALYZED
0077	BOTTOM TYPE
0093	SPHERE
0101	SEX
0109	SEA STATE (WMO 3700)
0110	WIND-WAVE DIRECTION
0117	DECISION
0148	LIFE HISTORY
0154	TIDE STAGE
0210	SAMPLE TYPE
0281	SEDIMENT SIZE
0314	TOW TYPE
0346	DISCHARGE DESCRIPTION
0347	WET/DRY PERIOD
0348	SIGN CODE
0350	CHEMICAL ANALYSIS
0351	BIOLOGICAL NICHE
0362	WAVE HEIGHT
0375	INDUSTRY CODE
0376	GEAR TYPE
0377	MEASUREMENT CODE
0379	TRACE CODE
0398	BEACH STATUS
0399	PREVAILING WIND
0100	PLATFORM TYPE
--	NODC TAXONOMIC CODE
--	NODC CHEMISTRY CODE

4.1.18 Phytoplankton (F028)

Geographic area: North Pacific, coastal Alaska, Puget Sound, Gulf of Mexico, northeast U.S. coast

Time period: 1960 -1983

This file contains data from sampling and analysis of marine phytoplankton. Information on phytoplankton abundance, distribution, and productivity derived from these data support studies of marine populations and ecosystems. Data reported may include: position, date, and time of sampling; bottom depth and sampling depths; volume of water filtered; and concentration of cells, carbon concentration, wet and dry weight, and counts for each species reported. Comments may be recorded in a text record.



File Structure -

Four 80-character records: (1) Master Record, (2) Text Record, (3) Detail Record 1, and (4) Detail Record 2.

File Format -

Phytoplankton (File 028)

PARAMETER	DESCRIPTION	SC	FL
MASTER RECORD			
NODC FILE NUMBER	ALWAYS '028'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
STATION NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED IN RECORD TYPES '2', '3' AND '4'	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS PLUS HEMISPHERE 'E' OR 'W'	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
DATE (GMT)	YYMMDD	31	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
TIME ZONE	XX - PRECEDED BY + OR - SIGN	41	3
DEPTH TO BOTTOM	XXXXX (WHOLE METERS)	44	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	49	10
BLANKS		59	22
TEXT RECORD			
NODC FILE NUMBER	ALWAYS '028'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
TEXT	62-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	16	62
SEQUENCE NUMBER	XXX - USED FOR SORTING EITHER TEXT INFORMATION OR POSITION OF TEXT WITHIN DATA RECORDS - ALSO INCLUDED IN RECORD TYPES '3' AND '4'	78	3
DETAIL I RECORD			
NODC FILE NUMBER	ALWAYS '028'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
STATION NUMBER	SEE RECORD '"	11	5
SAMPLE NUMBER	FOUR-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	16	4
SAMPLE DEPTH	XXXX (METERS TO TENTHS)	20	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	24	12
BLANK		36	1
COUNT	XXXXX - COUNT OF EACH SPECIES IDENTIFIED IN TAXONOMIC FIELD	37	5
NUMBER OF CELLS/LITER	XXXXXXXXX - NUMBER OF CELLS FOR EACH SPECIES IDENTIFIED IN TAXONOMIC FIELD	42	9
WET WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	51	7
DRY WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	58	7
VOLUME OF WATER FILTERED	XXXXX (WHOLE MILLILITERS)	65	5
BLANKS		70	8
SEQUENCE NUMBER	SEE RECORD '2'	78	3
DETAIL II RECORD			
NODC FILE NUMBER	ALWAYS '028'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1

STATION NUMBER	SEE RECORD '1'	11	5
SAMPLE NUMBER	FOUR-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	16	4
SAMPLE DEPTH	XXXX (METERS TO TENTHS)	20	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	24	12
BLANK		36	1
CELLS PER LITER	XXXXXXXXX - FOR SPECIES IDENTIFIED IN TAXONOMIC FIELD	37	9
CARBON PER LITER	14-DIGIT FIELD EXPRESSED IN PICOGRAMS PER LITER	46	14
PERCENT CELLS PER LITER	XXXXXXX (PERCENT TO HUNDRED-THOUSANDTHS)	60	7
PERCENT CARBON PER LITER	XXXXXXX (PERCENT TO HUNDRED-THOUSANDTHS)	67	7
BLANKS		74	4
SEQUENCE NUMBER	SEE RECORD '2'	78	3

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
--	NODC TAXONOMIC CODE

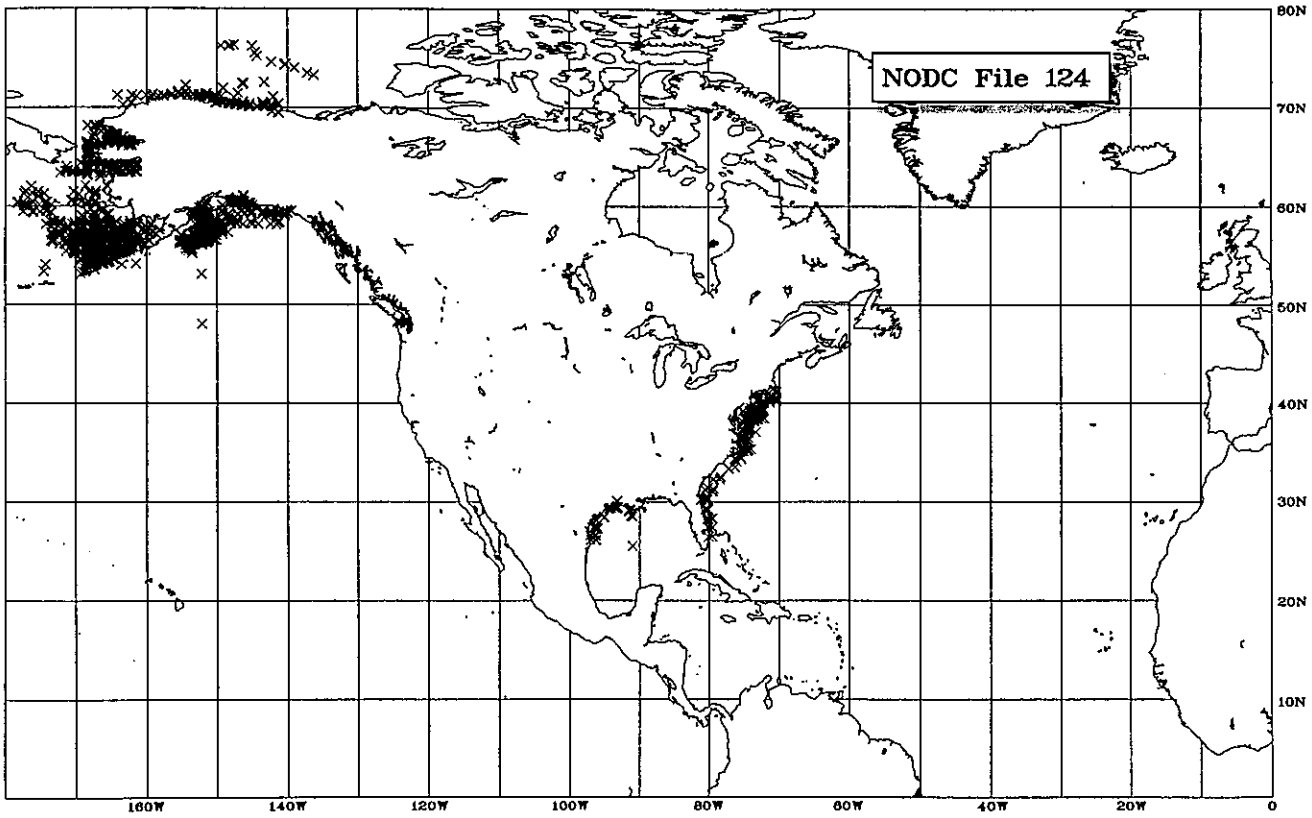
4.1.19 Zooplankton (F124)

Geographic area: Coastal Alaska, Puget Sound, U.S. Gulf coast and east coast

Time period: 1965 - 1983

This file contains data from sampling and analysis of marine zooplankton. Information on zooplankton abundance, distribution, and productivity derived from these data support studies of marine populations and ecosystems. Data reported may include: cruise information, position, date, and time of sampling; Bottom depth, sampling depths, temperature, and salinity; gear type, volume of water filtered, total dry and wet weight, and other data for total haul; and data for subsamples by species. Data on zooplankton catch by species may include subsample size, zooplankton concentration, life history code, and numbers of adults, juveniles, eggs, and larvae. Estimated density of holoplankton and meroplankton may also be reported. A text record is available for comments.

[**NOTE:** There are two options for reporting subsample counts of individuals at different life history stages. If life history codes are used, only number of individuals at that stage should be entered on that record. For example, if adult stage is coded in life history field, only number of adults should be recorded on that record. Additional, separate records should then be used to report number of juveniles and so on. Alternatively, life history codes may not be used and number of adults, juveniles, and so on entered in the proper fields of a single record.]



File Structure -

Nine 80-character records: (1) File Header Record, (2) Locationr Record, (3) Physical/Chemical Record,(4) Total Haul Data Record, (5) Subsample Data Record 1, (6) Subsample Data Record 2, (7) Text Record, (8) Plankton Data Record, and (9) Icthyoplankton Record.

File Format -

Zooplankton (File 124)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A'	10	1
VESSEL	11-CHARACTER FIELD FOR VESSEL NAME	11	11
CRUISE	SIX-CHARACTER FIELD FOR CRUISE IDENTIFICATION	22	6
BEGIN CRUISE DATE	YY/MM/DD-	28	9
END CRUISE DATE	YY/MM/DD	37	8
AREA/PROJECT	19-CHARACTER FIELD TO INDICATE AREA OF STUDY OR PROJECT NAME	45	19
INVESTIGATOR/INSTITUTION	14-CHARACTER FIELD TO INDICATE INVESTIGATOR OR INSTITUTION NAME	64	14
BLANKS		78	3
LOCATION RECORD			
NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B'	10	1
STATION NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED IN RECORDS 'C', 'D', 'E', 'F, 'G', 'H', AND 'I'	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
DATE (GMT)	YYMMDD	31	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
DEPTH TO BOTTOM	XXXXX (WHOLE METERS)	41	5
SAMPLE INTERVAL/UPPER	XXXX (WHOLE METERS)	46	4
SAMPLE INTERVAL/LOWER	XXXX (WHOLE METERS)	50	4
SHIP SPEED	XXX (KNOTS TO TENTHS)	54	3
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	57	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	58	10
BLANKS		68	10
SEQUENCE NUMBER	XXX	78	3
PHYSICAL/CHEMICAL RECORD			
NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
DEPTH	XXXX (METERS TO TENTHS)	16	4
WATER TEMPERATURE	XXXX NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTH)	20	4
SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	24	4
BLANKS		28	50
SEQUENCE NUMBER	XXX	78	3

TOTAL HAUL DATA RECORD

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
GEAR CODE	TWO-CHARACTER CODE - USE NODC CODE 0134	16	2
MESH SIZE	XXXX (MICRONS)	18	4
HAUL LENGTH	XXXX (WHOLE METERS)	22	4
VOLUME OF WATER FILTERED	XXXXXX (CUBIC METERS)	26	6
TOTAL SETTLED VOLUME	XXXX (WHOLE MILLILITERS)	32	4
TOTAL WATER DISPLACED	XXXX (WHOLE MILLILITERS)	36	4
TOTAL DRY WEIGHT OF HAUL	XXXXXXX (GRAMS TO HUNDREDTHS)	40	7
TOTAL WET WEIGHT OF HAUL	XXXXXXX (GRAMS TO HUNDREDTHS)	47	7
DURATION OF TOW	XXXXXX (HOURS, MINUTES AND SECONDS)	54	6
HAUL TYPE	ONE-CHARACTER CODE - USE NODC CODE 0175	60	1
BLANKS		61	17
SEQUENCE NUMBER	XXX	78	3

SUBSAMPLE DATA RECORD 1

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'E'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	16	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	20	12
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	32	1
SEX CODE	ONE-CHARACTER CODE - USE NODC CODE 0101	33	1
SIZE OF SUBSAMPLE	XXXX (PERCENT TO TENTHS)	34	4
NUMBER IN SUBSAMPLE	XXXXX	38	5
CONCENTRATION	XXXXXXXXX (NUMBER PER CUBIC METER TO TEN-THOUSANDTHS)	43	9
NUMBER OF ADULTS	XXXXX	52	5
NUMBER OF JUVENILES	XXXXX	57	5
NUMBER OF EGGS	XXXXX	62	5
NUMBER OF LARVAE	XXXXX	67	5
MOLTING STAGE	ONE-CHARACTER CODE - USE NODC CODE 0395	72	1
BLANKS		73	5
SEQUENCE NUMBER	XXX	78	3

SUBSAMPLE DATA RECORD 2

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	16	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	20	12
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	32	1
SEX CODE	ONE-CHARACTER CODE - USE NODC CODE 0101	33	1
DRY WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	34	7
WET WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	41	7
CONCENTRATION	XXXXXXXXXX (NUMBER PER CUBIC METER TO HUNDREDTHS)	48	10?
BLANKS		59	19
SEQUENCE NUMBER	XXX	78	3

TEXT RECORD

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'G'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
TEXT	62-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	16	62
SEQUENCE NUMBER	XXX	78	3

PLANKTON DATA RECORD

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'H'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5

SAMPLE NUMBER	FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	16	4
SAMPLE SIZE	XXXX (PERCENT TO TENTHS)	20	4
ESTIMATED DENSITY OF HOLOPLANKTON	XXXXXXXXXX (NUMBER/CUBIC METER TO TENTHS)	24	11
ESTIMATED DENSITY OF MEROPLANKTON	XXXXXXXXXX (NUMBER/CUBIC METER TO TENTHS)	35	11
PROPORTION OF MEROPLANKTON TO THE TOTAL HAUL	XXXXX (PERCENT TO TEN-THOUSANDTHS)	46	6
BLANKS		52	24
TEXT (LOCATION CODE)	ORIGINATOR MAY USE THIS FIELD FOR AN INTERNAL LOCATION CODE	76	2
SEQUENCE NUMBER	XXX	78	3

ICHTHYOPLANKTON RECORD

NODC FILE NUMBER	ALWAYS '124'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'I'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	16	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	20	12
NUMBER CAUGHT	XXXXX - TOTAL FOR EACH SPECIES	32	5
MINIMUM SIZE	XXXX (MILLIMETERS TO TENTHS)	37	4
MAXIMUM SIZE	XXXX (MILLIMETERS TO TENTHS)	41	4
MEAN SIZE	XXXX (MILLIMETERS TO TENTHS)	45	4
NUMBER OF EGGS	XXXXXX	49	6
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	55	1
BLANKS		56	20
TEXT (LOCATION CODE)	ORIGINATOR MAY USE THIS FIELD FOR AN INTERNAL LOCATION CODE	76	2
SEQUENCE NUMBER	XXX	78	3

NODC Code Tables Used with this Format -

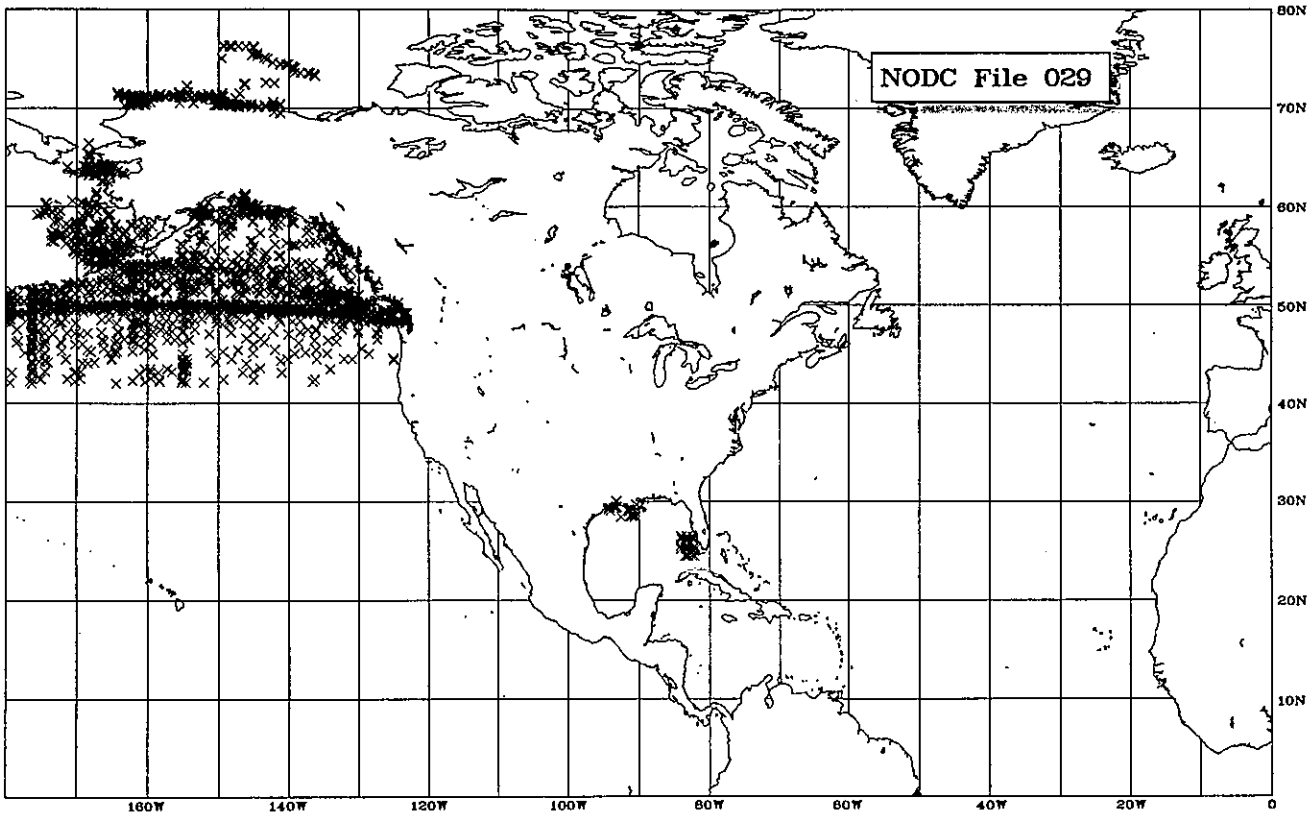
CODE NUMBER	CODE NAME
0101	SEX
0134	GEAR
0148	LIFE HISTORY
0175	HAUL TYPE
0395	MOLT STAGE
--	NODC TAXONOMIC CODE

4.1.20 Primary Productivity 1 (F029)

Geographic area: North Pacific, coastal Alaska, Puget Sound, U.S. Gulf coast

Time period: 1958 - 1983

This file contains data from measurements of primary productivity. In addition to cruise information, position, date, time, sampling depths, bottom depth, and environmental information, this file may contain measured parameters including: concentrations of chlorophyll A and phaeopigments; concentrations of phosphate, nitrate, silicate, and ammonia; temperature and salinity; and carbon assimilation. Measurements of chlorophyll A, phaeopigment, and carbon assimilation may be reported as integrated values. A text record is available for comments.



File Structure -

Four 80-character records: (1) File Header Record, (2) Master Record, (3) Detail Record, and (4) Text Record.

File Format -

Primary Productivity 1 (File 029)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '029'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '0'	10	1
VESSEL	11-CHARACTER FIELD FOR VESSEL NAME DETERMINED BY THE ORIGINATOR	11	11
CRUISE	SIX-CHARACTER FIELD FOR CRUISE NUMBER - ASSIGNED BY THE ORIGINATOR	22	6
BEGIN CRUISE DATE (GMT)	YY/MM/DD	28	8
BLANK		36	1
END CRUISE DATE (GMT)	YY/MM/DD	37	8
SENIOR SCIENTIST	19-CHARACTER FIELD FOR SCIENTIST'S NAME	45	19
INVESTIGATOR/INSTITUTION	17-CHARACTER FIELD FOR INVESTIGATOR OR INSTITUTION NAME	64	17
MASTER RECORD			
NODC FILE NUMBER	ALWAYS '029'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
STATION NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED IN RECORD TYPES 3 AND 4	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
DATE (GMT)	YYMMDD	31	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	37	4
TIME ZONE	XX - PRECEDED BY + OR - SIGN	41	3
DEPTH TO BOTTOM	XXXXX (WHOLE METERS)	44	5
CHLOROPHYLL A (INTEGRATED)	XXXX (MILLIGRAMS PER SQ METER TO TENTHS)	49	4
PHAEOPIGMENTS (INTEGRATED)	XXXX (MILLIGRAMS PER SQ METER TO TENTHS)	53	4
CARBON ASSIMILATION (INTEGRATED)	XXXXX (MILLIGRAMS PER SQ METER TO TENTHS PER DAY)	57	5
ONE PERCENT LIGHT DEPTH	XXX (WHOLE METERS)	62	3
PHOSPHATE PO4-P REACTIVE TIME	XX (MINUTES)	65	2
PH SCALE	ONE-DIGIT CODE FOR INDICATING TYPE OF SCALE USED - USE NODC CODE 0183	67	1
IN-SITU CORRECTIONS FOR PH	ONE-DIGIT CODE FOR INDICATING CORRECTION STATUS - USE NODC CODE 0184	68	1
SECCHI DEPTH	XX - GREATEST DEPTH THAT SECCHI DISC CAN BE OBSERVED (WHOLE METERS)	69	2
MIXED LAYER DEPTH	XXX (WHOLE METERS)	71	3
LIGHT LEVEL (ABOARD PLATFORM)	XXX (LANGLEYS/DAY)	74	3
QUANTA	XXXX - MICRO-EINSTEINS PER SQ METER PER DAY TO THREE DIGITS - 4TH COLUMN (80) IS FOR EXPONENT - ALL UNITS WILL BE POSITIVE VALUES	77	4
DETAIL RECORD			
NODC FILE NUMBER	ALWAYS '029'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6

RECORD NUMBER	ALWAYS '3'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
DEPTH OF SAMPLE	XXXXX (METERS TO TENTHS)	16	5
CHLOROPHYLL A CONCENTRATION	XXXX (MILLIGRAMS PER CUBIC METER TO HUNDREDTHS)	21	4
PHAEOPIGMENT CONCENTRATION	XXXX (MILLIGRAMS PER CUBIC METER TO HUNDREDTHS)	25	4
CARBON ASSIMILATION	XXXXX (MILLIGRAMS OF CARBON PER CUBIC METER PER HOUR)	29	5
ELAPSED TIME OF INCUBATION	XXXX (HOURS AND MINUTES)	34	4
OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	38	4
PHOSPHATE PO4-P (INORGANIC)	XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	42	4
AMMONIA NH3-N	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	46	3
NITRATE NO3-N	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	49	3
NITRITE NO2-N	XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)	52	3
SILICATE SIO3-SI	XXXXX (MICROGRAM-ATOMS/LITER TO TENTHS)	55	5
PH	XXX (TO HUNDREDTHS)	60	3
ALKALINITY, TOTAL	XXXX (MILLIEQUIVALENTS PER LITER TO THOUSANDTHS)	63	4
TEMPERATURE	XXXX - NEGATIVE TEMPERATURE ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	67	4
SALINITY	XXXX (PARTS PER THOUSAND TO HUNDREDTHS)	71	4
BLANKS		75	3
SEQUENCE NUMBER	XXX - USED FOR SORTING DATA RECORDS	78	3

TEXT RECORD

NODC FILE NUMBER	ALWAYS '029'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
TEXT	62-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	16	62
SEQUENCE NUMBER	XXX - USED FOR SORTING TEXT RECORDS OR INSERTING WITH DATA RECORDS	78	3

NODC Code Tables Used with this Format -

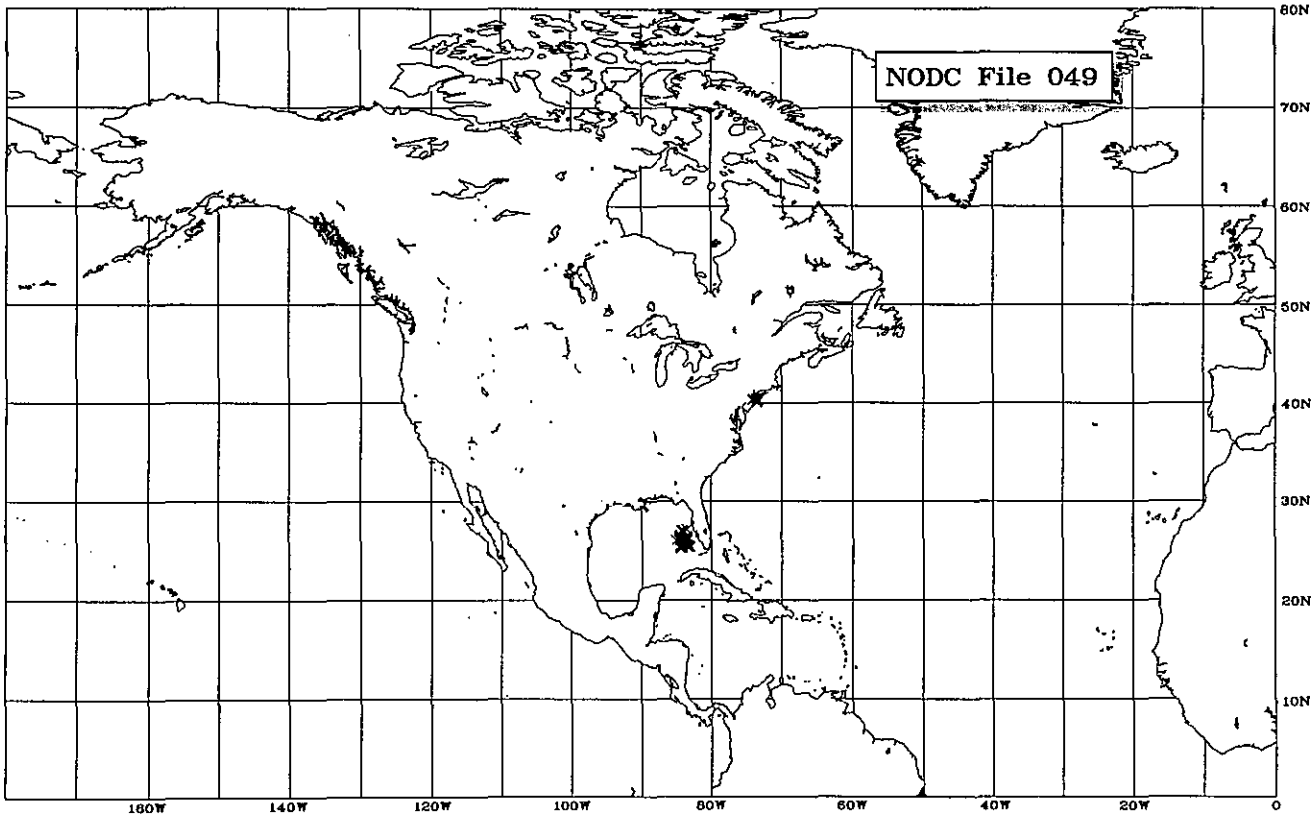
CODE NUMBER	CODE NAME
0183	PH SCALE
0184	IN SITU CORRECTIONS

4.1.21 Primary Productivity 2 (F049)

Geographic area: Gulf of Mexico, New York Bight

Time period: 1973 - 1982

This file contains data from measurements of photosynthetic capacity and phytoplankton productivity. In addition to cruise information, position, date, time, sampling depths, bottom depth, and general environmental information, this file may contain measured parameters including: concentrations of chlorophylls A, B, and C, plant carotenoids, and phaeopigments; concentrations of oxygen, particulate organic carbon, ammonia, nitrite, nitrate, silicate, and urea; temperature, salinity, and total alkalinity; and light penetration and light intensity. Values of photosynthetic capacity and primary productivity may be reported as total values or partial values for phytoplankton, net plankton, nanoplankton, and dissolved organic matter.



File Structure -

Five 105-character records: (1) File Header Record, (2) First Station Header Record, (3) Environmental Record, (4) Physical/Chemical Record, and (5) Pigments/Carbon Assimilation Record.

File Format -

Primary Productivity 2 (File 049)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '049'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
VESSEL	11-CHARACTER VESSEL NAME	11	11
CRUISE	SIX-CHARACTER ORIGINATOR'S CRUISE ID	22	6
CRUISE DATES	MM/DD/YY-MM/DD/YY - BEGIN-END DATES	28	17
SENIOR SCIENTIST	19-CHARACTER FIELD FOR SCIENTIST NAME	45	19
INVESTIGATOR	17-CHARACTER FIELD FOR RESPONSIBLE \INSTITUTION	64	17
BLANKS		81	24
FIRST STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '049'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
SEQUENCE	XXX - THREE-CHARACTER SEQUENCE NUMBER	11	3
STATION	FIVE-CHARACTER STATION IDENTIFIER	14	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	19	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	25	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	26	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	33	1
DATE (GMT)	YYMMDD	34	6
TIME (GMT)	XXX (HOURS TO TENTHS)	40	3
BOTTOM	XXXXX - WATER DEPTH (METERS TO TENTHS)	43	5
NAVIGATION	TWO-CHARACTER CODE - USE NODC CODE 0085	48	2
MPZ CHLOROPHYLL A	XXXX - MEAN PHOTIC ZONE CHLOROPHYLL A (MILLIGRAMS/CUBIC METER TO TENTHS)	50	4
MPZ PHAEOPIGMENTS	XXXX - (MILLIGRAMS/CUBIC METER TO TENTHS)	54	4
MPZ CARBON ASSIMILATION	XXXXX - ((MILLIGRAMS CARBON/CUBIC METER)/HR TO TENTHS)	58	5
TRANSPARENCY	XXXX - SECCHI DISC DEPTH (METERS TO TENTHS)	63	4
1 PERCENT LIGHT DEPTH	XXX (WHOLE METERS)	67	3
TOTAL INCIDENT RADIATION	XXX (CAL/SQ CM PER DAY TO TENTHS)	70	3
PHOTOSYNTHETICALLY ACTIVE RADIATION	XXXXXX (EINSTEINS/SQ M PER DAY TO THOUSANDTHS)	73	2
EXTINCTION COEFFICIENT	XXXX (1/METER TO HUNDREDTHS - SIGN INCLUDED ADJACENT AND TO THE LEFT OF VALUE)	79	4
SURFACE TEMPERATURE	XXX NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	83	3
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	86	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	87	10
BLANKS		97	8
ENVIRONMENTAL RECORD			
NODC FILE NUMBER	ALWAYS '049'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
BAROMETER	XXX (MILLIBARS TO TENTHS)	19	3

DRY BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	22	4
WET BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	26	4
WIND DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	30	2
WIND SPEED	XX (KNOTS)	32	2
SEA DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	34	2
SEA HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	36	1
SWELL DIRECTION	TWO-CHARACTER CODE - USE NODC CODE 0110	37	2
SWELL HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	39	1
WEATHER	ONE-CHARACTER CODE - USE NODC CODE 0108	40	1
CLOUD TYPE	ONE-CHARACTER CODE - USE NODC CODE 0053	41	1
CLOUD COVER	ONE-CHARACTER CODE - USE NODC CODE 0105	42	1
VISIBILITY	ONE-CHARACTER CODE - USE NODC CODE 0157	43	1
BLANKS		44	61

PHYSICAL/CHEMICAL RECORD

NODC FILE NUMBER	ALWAYS '049'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
DEPTH	XXXX - SAMPLE DEPTH (METERS TO TENTHS)	19	4
TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	23	4
SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	27	5
PH	XXX (TO HUNDREDTHS)	32	3
TOTAL ALKALINITY	XXX (MILLIEQUIVALENTS/LITER TO HUNDREDTHS)	35	3
SIGMA-T	XXXX (TO HUNDREDTHS)	38	4
DISSOLVED OXYGEN	XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)	42	4
TURBIDITY	XXXX - JTU TO TENTHS	46	4
PARTICULATE ORGANIC CARBON	XXXXX (MILLIGRAMS/LITER TO HUNDREDTHS)	50	5
PARTICULATE NITROGEN	XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)	55	4
TOTAL MICROSESTON	XXXXX (MILLIGRAMS/LITER TO TENTHS)	59	5
AMMONIA	XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)	64	4
NITRITE	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	68	3
NITRATE	XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)	71	4
UREA	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	75	3
SILICATE	XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)	78	4
INORGANIC PHOSPHATE	XXX (MICROGRAM-ATOMS/LITER TO TENTHS)	82	3
SOLUBLE REACTIVE IRON	XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)	85	4
LIGHT PENETRATION	XXXX (PERCENT TO TENTHS)	89	4
BLANKS		93	12

PIGMENTS/CARBON ASSIMILATION RECORD

NODC FILE NUMBER	ALWAYS '049'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
SEQUENCE	SEE RECORD '2'	11	3
STATION	SEE RECORD '2'	14	5
SAMPLE DEPTH	XXXX (METERS TO TENTHS)	19	4
CHLOROPHYLL A	XXXX (MICROGRAMS/LITER TO TENTHS)	23	4
CHLOROPHYLL B	XXXX (MICROGRAMS/LITER TO TENTHS)	27	4
CHLOROPHYLL C	XXXX (MICROGRAMS/LITER TO TENTHS)	31	4
PLANT CAROTENOIDS	XXXX (MICROGRAMS/LITER TO TENTHS)	35	4
PHAEOPIGMENTS	XXXX (MICROGRAMS/LITER TO TENTHS)	39	4
REPLICATE NUMBER	X - FOR PHOTOSYNTHETIC CAPACITY EXPERIMENT	43	1
LIGHT INTENSITY	XX (CAL/SQ CM PER MINUTE TO HUNDREDTHS)	44	2
PHOTOSYNTHETIC CAPACITY EXPERIMENT ELAPSED TIME	XXX (HOURS TO TENTHS)	46	3
PHOTOSYNTHETIC CAPACITY, PHYTOPLANKTON	XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)	49	5
PHOTOSYNTHETIC CAPACITY, NET PLANKTON	XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)	54	5
PHOTOSYNTHETIC CAPACITY, NANOPLANKTON	XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)	59	5
PHOTOSYNTHETIC CAPACITY, DISSOLVED ORGANIC MATTER	XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)	64	5

TOTAL PHOTOSYNTHETIC CAPACITY	XXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)	69	4
REPLICATE NUMBER	X - FOR PRIMARY PRODUCTIVITY EXPERIMENT	74	1
PERCENT LIGHT	XXX (WHOLE NUMBERS)	75	3
PRIMARY PRODUCTIVITY, ELAPSED TIME	XXX (HOURS TO TENTHS)	78	3
PRIMARY PRODUCTIVITY, PHYTOPLANKTON	XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS)	81	5
PRIMARY PRODUCTIVITY, NET PLANKTON	XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS)	86	5
PRIMARY PRODUCTIVITY, NANOPLANKTON	XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS)	91	5
PRIMARY PRODUCTIVITY, DISSOLVED ORGANIC MATTER	XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS)	96	5
TOTAL PRIMARY PRODUCTIVITY	XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS)	101	5

NODC Code Tables Used with this Format -

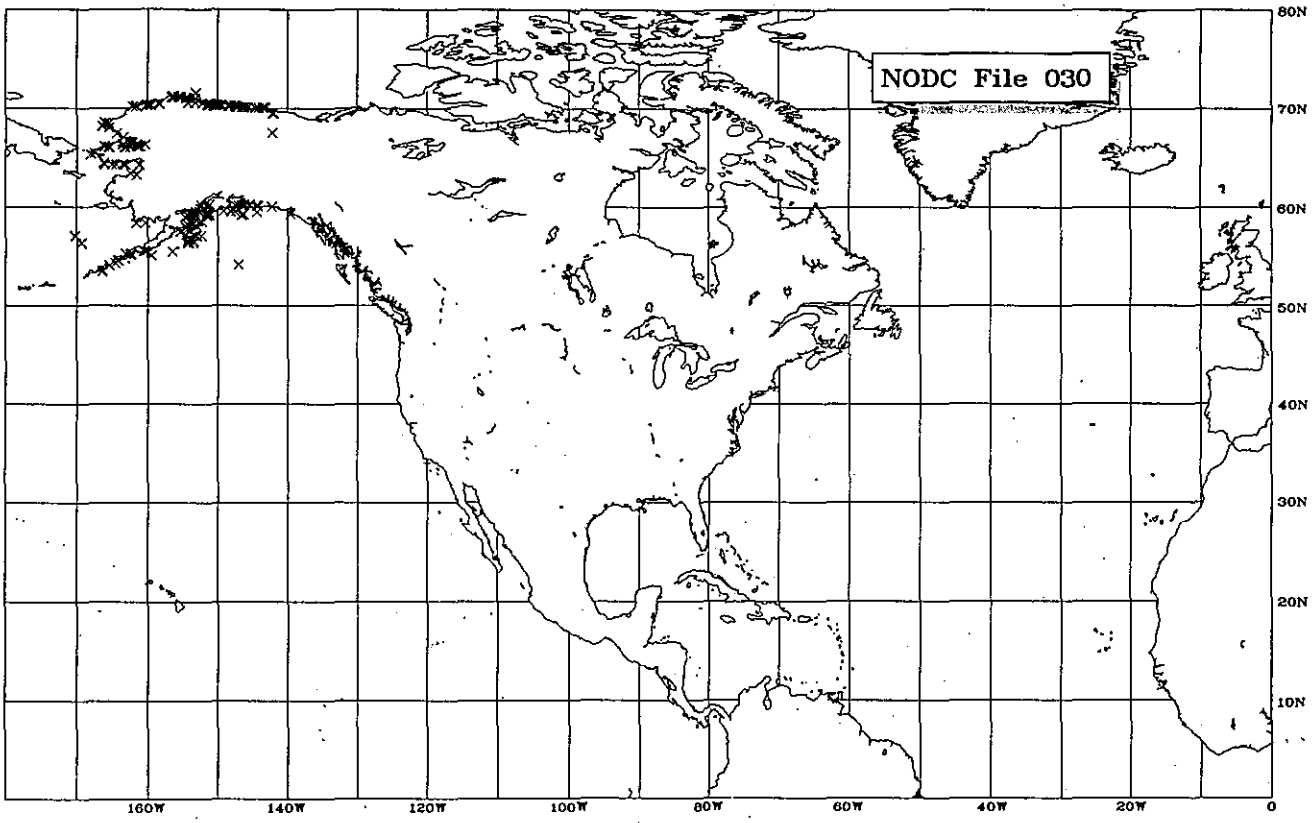
CODE NUMBER	CODE NAME
0053	CLOUD TYPE (WMO 500)
0085	NAVIGATION
0104	WAVE HEIGHT (WMO 1555)
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0110	WIND-WAVE DIRECTION
0157	VISIBILITY (WMO 4300)

4.1.22 Intertidal Organisms and Habitats (F030)

Geographic area: Coastal Alaska

Time period: 1974 - 1980

This file contains data from field sampling of marine organisms in intertidal or subtidal habitats. The data are collected to provide information about species abundance and distribution. Data from each observation may include: cruise and station information such as vessel name, senior scientist, position, date, and time; environmental conditions such as surface temperature and salinity, wind speed and direction, and sea state; sediment and habitat descriptors; and species identification and counts and measurements. Data may be reported for either individual or composite samples. A text record is available for reporting comments.



File Structure -

Seven 122-character records: (1) File Header Record, (2) Station Header Record, (3) Site Header Record, (4) Composite Data Record, (5) Individual Sample Record, (6) Profile Data Record, and (7) Text Record.

File Format -

Intertidal Organisms and Habitats (File 030)

PARAMETER	DESCRIPTION	SC	FL
FILE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
VESSEL NAME/FIELD UNIT	11-CHARACTER FIELD FOR PLATFORM IDENTIFICATION	11	11
CRUISE NUMBER	SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	22	6
START DATE (GMT)	YYMMDD	28	6
END DATE (GMT)	YYMMDD	34	6
SENIOR SCIENTIST	19-CHARACTER FIELD FOR SENIOR SCIENTIST OR TEAM LEADER	40	19
INVESTIGATOR/INSTITUTION	64-CHARACTER FIELD FOR INVESTIGATOR AND/OR INSTITUTION NAME	59	64
STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
STATION NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO INCLUDED ON RECORD TYPES '3', '4', '5', '6' AND '7'	11	5
SEQUENCE NUMBER	XXXX - USED FOR SORTING DATA RECORDS - ALSO INCLUDED ON RECORD TYPES '3', '4', '5', '6' AND '7'	16	4
LATITUDE	DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	20	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	26	1
LONGITUDE	DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)	27	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	34	1
DATE	YYMMDD	35	6
START TIME (GMT)	XXXX (HOURS AND MINUTES)	41	4
ELAPSED TIME (GMT)	XXXX (HOURS AND MINUTES)	45	4
TIME ZONE	TWO-DIGIT FIELD PRECEDED BY + OR - SIGN TO INDICATE GEOGRAPHIC TIME ZONE	49	3
SURFACE SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	52	5
SURFACE TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS)	57	5
AIR TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	62	4
SECCHI DISC DEPTH	XXX (METERS TO TENTHS)	66	3
WEATHER	TWO-CHARACTER CODE - USE NODC CODE 0159 (WMO 4677)	69	2
CLOUD TYPE	ONE-CHARACTER CODE - USE NODC CODE 0053 (WMO 500)	71	1
CLOUD AMOUNT	ONE-CHARACTER CODE - USE NODC CODE 0105 (WMO 2700)	72	1
WIND SPEED	XX (WHOLE KNOTS)	73	2
WIND DIRECTION	XXX (DEGREES - DIRECTION FROM)	75	3
SEA STATE	ONE-CHARACTER CODE - USE NODC CODE 0109 (WMO 3700)	78	1
BREAKER HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0109 (WMO 3700)	79	1
EXPOSURE DIRECTION	XXX (DEGREES)	80	3
SUBSTRATA TYPE-TERTIARY*	ONE-CHARACTER CODE - USE NODC CODE 0103	83	1
SUBSTRATA TYPE-SECONDARY*	ONE-CHARACTER CODE - USE NODC CODE 0103	84	1
SUBSTRATA TYPE-PRIMARY*	ONE-CHARACTER CODE - USE NODC CODE 0103	85	1
*THERE MAY BE ANY COMBINATION OF UP TO 3 SUBSTRATA TYPE CODES. CODE FROM RIGHT TO LEFT (MOST PREDOMINANT ON THE RIGHT)			
BAROMETRIC PRESSURE	XXXX (MILLIBARS TO TENTHS)	86	4
HABITAT GEOMORPHIC	ONE-CHARACTER CODE - USE NODC CODE 0098	90	1
HABITAT COMPOSITION	ONE-CHARACTER CODE - USE NODC CODE 0008	91	1
HABITAT COVER	ONE-CHARACTER CODE - USE NODC CODE 0009	92	1
HABITAT SLOPE	ONE-CHARACTER CODE - USE NODC CODE 0071	93	1

SECCHI DISC VISIBILITY	ONE-CHARACTER CODE - USE NODC CODE 0220	94	1
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	95	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	96	10
BLANKS		106	17

SITE HEADER RECORD

NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
STATION NUMBER	SEE RECORD '2'	11	5
SEQUENCE NUMBER	SEE RECORD '2'	16	4
CATALOG NUMBER	EIGHT-CHARACTER FIELD FOR THE ORIGINATOR'S INTERNAL NUMBER	20	8
PHOTOGRAPH NUMBER	TEN-CHARACTER FIELD FOR THE ORIGINATOR'S INTERNAL NUMBER	28	10
GEAR TYPE	ONE-CHARACTER CODE - USE NODC CODE 0010	38	1
TRANSECT NUMBER	TWO-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	39	2
TRANSECT DIRECTION	XXX (DEGREES TOWARD)	41	3
METER NUMBER	FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	44	2
ZONE/ARROW/NO. OF SAMPLE	THREE-CHARACTER FIELD DETERMINED BY THE ORIGINATOR	48	3
QUADRAT SIZE	XXXXX (SQUARE METERS TO THOUSANDTHS)	51	5
ELEVATION	XXXX (METERS TO HUNDREDTHS) - PRECEDED BY MINUS SIGN FOR SAMPLES COLLECTED BELOW WATER LEVEL	56	4
SUBSTRATA TYPE-TERTIARY	SEE RECORD '2'	60	1
SUBSTRATA TYPE-SECONDARY	SEE RECORD '2'	61	1
SUBSTRATA TYPE-PRIMARY	SEE RECORD '2'	62	1
SURFACE TOPOGRAPHY III	SAME CODING SCHEME AS SUBSTRATA TYPE - USE NODC CODE 0011	63	1
SURFACE TOPOGRAPHY II	SAME AS ABOVE	64	1
SURFACE TOPOGRAPHY I	SAME AS ABOVE	65	1
COLLECTION TIME (GMT)	XXXX (HOURS AND MINUTES)	66	4
SIEVE SIZE	XXXX (MILLIMETERS TO HUNDREDTHS)	70	4
DILUTION VOLUME*	XXX (TO THOUSANDTHS)	74	3

*THAT PORTION OF A SAMPLE EXPRESSED IN DECIMAL EQUIVALENTS WHICH IS ANALYZED AFTER THE SAMPLE HAS BEEN DILUTED, AS A MEANS OF STATISTICALLY ESTIMATING THE COMPOSITION OF THE SAMPLE WITHOUT HAVING TO EXAMINE THE ENTIRE SAMPLE. FOR EXAMPLE, A SAMPLE IS DILUTED SO AS TO EQUAL 16 TIMES ITS ORIGINAL VOLUME, WITH ONE-SIXTEENTH BEING THE PART STUDIED, WILL HAVE ITS DILUTION VOLUME RECORDED AS .063

QUADRAT SLOPE	XX (DEGREES)	77	2
DIRECTION OF QUADRAT SLOPE	XXX (DEGREES TOWARD)	79	3
GRAB NUMBER	XX - SEQUENTIAL ORDER OF MULTIPLE DIGS ASSIGNED BY THE ORIGINATOR	82	1
SEDIMENT	XXXXXXX (LITERS TO THOUSANDTHS)	84	7
MEAN GRAIN SIZE	TWO-DIGIT FIELD - PHI GRADE SCALE BASED ON THE NEGATIVE LOGARITHM TO THE BASE 2 OF THE PARTICLE DIAMETER IN MILLIMETERS. - MINUS PHI MUST BE REPORTED WITH A MINUS SIGN IN COL 91	91	2
PATCH GRID SIZE	XXXXX (SQUARE METERS TO THOUSANDTHS)	93	5
MEDIUM FRAME MULTIPLE	XX - NUMBER OF GRIDS OCCUPIED BY ALL SPECIES WITHIN	98	2
LARGE FRAME MULTIPLE	XX - NUMBER OF GRIDS OCCUPIED BY ALL SPECIES WITHIN	100	2
TOTAL WORK AREA	XXXXX (SQUARE METERS TO THOUSANDTHS)	102	5
DEPTH	XXXX - DEPTH OF SAMPLE (METERS TO TENTHS)	107	5
DISTANCE OF NET TOW	XXX (METERS TO TENTHS) - SEE COL 118	112	3
LARGE SAMPLE QUADRAT	XXX (SQUARE METERS TO TENTHS)	115	3
DISTANCE OF NET TOW	XXX - TO BE USED FOR DISTANCES OF 100 METERS OR MORE (WHOLE METERS)	118	3
BLANKS		121	2

COMPOSITE DATA RECORD

NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
STATION NUMBER	SEE RECORD '2'	11	5
SEQUENCE NUMBER	SEE RECORD '2'	16	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	20	12
SEX	ONE-CHARACTER CODE - USE NODC CODE 0101	32	1
CONDITION III	ONE-CHARACTER CODE - USE COMBINATION OF UP TO 3 CONDITION CODES - CODE FROM RIGHT TO LEFT - USE CODE NODC 0069	33	1
CONDITION II	SAME AS ABOVE	34	1

CONDITION I	SAME AS ABOVE	35	1
COVERAGE	XXX - THE PERCENTAGE OF THE QUADRAT COVERED BY SPECIES TOO SMALL TO BE COUNTED OR TOO WELL ATTACHED TO THE SUBSTRATE TO BE REMOVED (WHOLE PERCENT)	36	3
COUNT	XXXXX - TOTAL NUMBER OF INDIVIDUALS (FOR EACH SPECIES)	39	5
WET WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	44	7
DRY WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	51	7
MINIMUM LENGTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	58	6
MAXIMUM LENGTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	64	6
DISPLACEMENT VOLUME	XXXXX (MILLILITERS TO TENTHS)	70	5
MEAN LENGTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	75	6
MINIMUM WIDTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	81	6
MAXIMUM WIDTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	87	6
MEAN WIDTH	XXXXXX (MILLIMETERS TO HUNDREDTHS)	93	6
MINIMUM AGE	XX (YEARS)	99	2
MAXIMUM AGE	XX (YEARS)	101	2
MEAN AGE	XX (YEARS)	103	2
SMALL FRAME	XXX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN	105	3
MEDIUM FRAME	XXX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN	108	3
LARGE FRAME	XX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN	111	2
DILUTION VOLUME	PPP - SEE RECORD '3' FOR EXPLANATION	113	3
PLANT HEIGHT	XX - FOR PLANTS LESS THAN 100 CM IN HEIGHT (WHOLE CENTIMETERS)	116	2
STARFISH MEASUREMENTS	ONE-CHARACTER CODE - USE WHEN STARFISH MEASUREMENTS (COLS 58-69, 75-80) ARE REPORTED - USE NODC CODE 0070	118	1
PLANT HEIGHT	XXXX - PLANT HEIGHTS THAT EXCEED 99 CENTIMETERS (WHOLE CENTIMETERS)	119	4

INDIVIDUAL SAMPLE DATA

NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
STATION NUMBER	SEE RECORD '2'	11	5
SEQUENCE NUMBER	SEE RECORD '2'	16	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	20	12
SEX	ONE-CHARACTER CODE - USE NODC CODE 0101	32	1
CONDITION III	ONE-CHARACTER CODE - USE COMBINATION OF UP TO 3 CONDITION CODES - CODE FROM RIGHT TO LEFT - USE NODC CODE 0069	33	1
CONDITION II	SAME AS ABOVE	34	1
CONDITION I	SAME AS ABOVE	35	1
AGE	XX (YEARS)	36	2
WET WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	38	7
DRY WEIGHT	XXXXXXX (GRAMS TO THOUSANDTHS)	45	7
LENGTH	XXXXXX (MILLIMETERS (TO HUNDREDTHS)	52	6
WIDTH	XXXXXX (MILLIMETERS (TO HUNDREDTHS)	58	6
DISPLACEMENT VOLUME	XXXXX (MILLILITERS TO TENTHS)	64	5
STARFISH MEASUREMENTS	ONE-CHARACTER CODE - USE WHEN STARFISH MEASUREMENTS (COLS 52-63) ARE REPORTED - USE NODC CODE 0070	69	1
BLANKS		70	53

PROFILE DATA RECORD

NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '6'	10	1
STATION NUMBER	SEE RECORD '2'	11	5
SEQUENCE NUMBER	SEE RECORD '2'	16	4
OXYGEN	XXX (MILLILITERS PER LITER TO TENTHS)	20	3
PH	XX (TO TENTHS)	23	2
PH SCALE	ONE-CHARACTER CODE - USE NODC CODE 0183	25	1
SALINITY	XXX (PARTS PER THOUSAND TO TENTHS)	26	3
INTERSTITIAL SALINITY	XXX (PARTS PER THOUSAND TO TENTHS)	29	3
PERMAFROST DEPTH	XX (METERS TO TENTHS)	32	2
WATER TEMPERATURE	XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)	34	3
SECCHI DISK DEPTH	XXXX (METERS TO HUNDREDTHS)	37	4
GRAIN SIZE IN PHI UNIT LEVELS GREATER THAN -8	XXX (PERCENT BY WEIGHT TO TENTHS)	41	3
-8 TO -6	XXX (PERCENT BY WEIGHT TO TENTHS)	44	3
-6 TO -4	XXX (PERCENT BY WEIGHT TO TENTHS)	47	3
-4 TO -2	XXX (PERCENT BY WEIGHT TO TENTHS)	50	3

-2 TO -1	XXX (PERCENT BY WEIGHT TO TENTHS)	53	3
-1 TO 0	XXX (PERCENT BY WEIGHT TO TENTHS)	56	3
0 TO 1	XXX (PERCENT BY WEIGHT TO TENTHS)	59	3
1 TO 2	XXX (PERCENT BY WEIGHT TO TENTHS)	62	3
2 TO 3	XXX (PERCENT BY WEIGHT TO TENTHS)	65	3
3 TO 4	XXX (PERCENT BY WEIGHT TO TENTHS)	68	3
LESS THAN 4	XXX (PERCENT BY WEIGHT TO TENTHS)	71	3
SALINITY METHOD	ONE-CHARACTER CODE - USE NODC CODE 0502	74	1
BLANKS		75	48

TEXT RECORD

NODC FILE NUMBER	ALWAYS '030'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '7'	10	1
STATION NUMBER	SEE RECORD '2'	11	5
SEQUENCE NUMBER	SEE RECORD '2'	16	4
TEXT	103-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	20	103

NODC Code Tables Used with this Format -

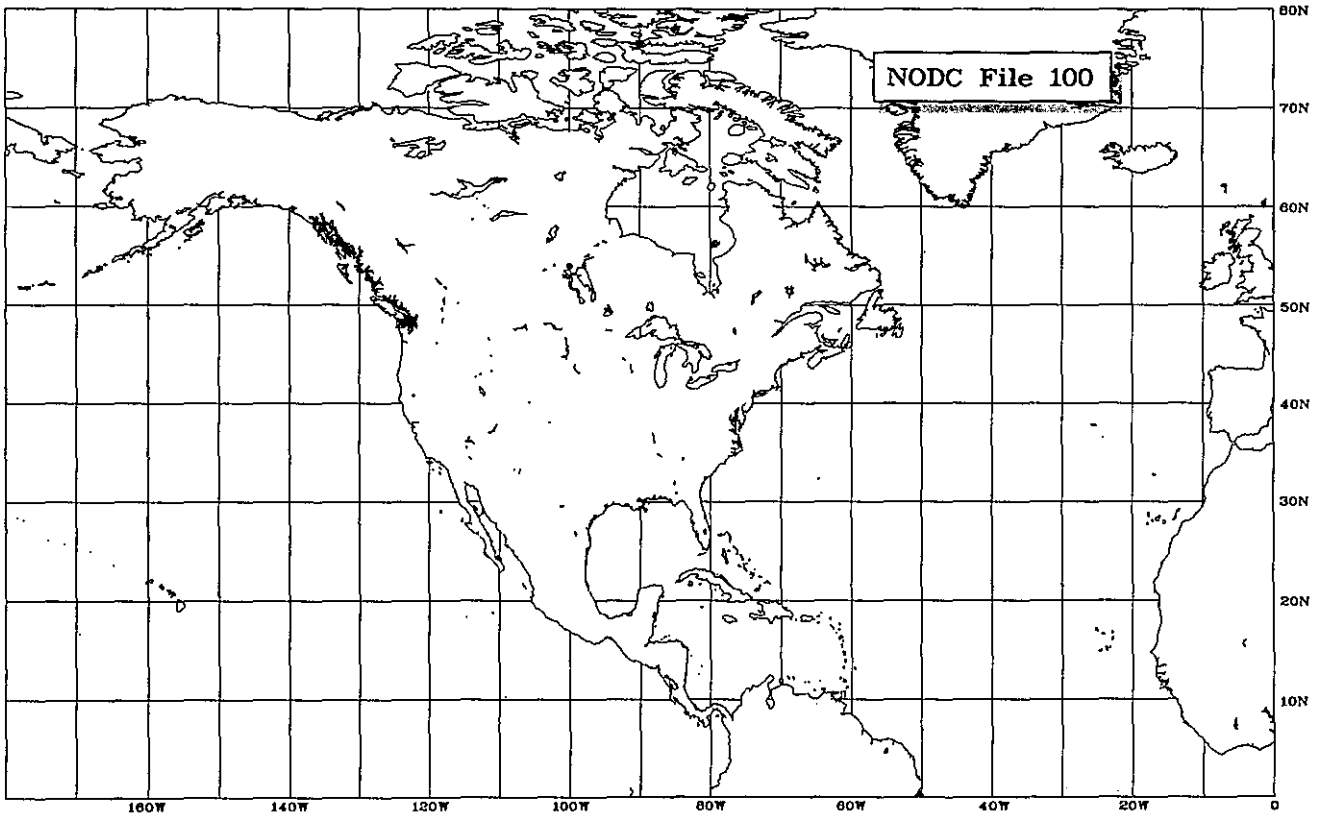
CODE NUMBER	CODE NAME
0008	COMPOSITION
0009	COVER (030)
0010	GEAR TYPE (030)
0011	SURFACE TOPOGRAPHY
0053	CLOUD TYPE (WMO 500)
0069	CONDITION
0070	STARFISH MEASUREMENT
0071	SLOPE (030)
0098	HABITAT
0101	SEX
0103	SUBSTRATA TYPE
0105	CLOUD AMOUNT (WMO 2700)
0109	SEA STATE (WMO 3700)
0159	WEATHER (WMO 4677)
0183	PH SCALE
0220	SECCHI VISIBILITY

4.1.23 Intertidal/Subtidal Organisms and Habitats (F100)

Geographic area: Puget Sound

Time period: 1974 - 1979

This file contains data from sampling of marine organisms in intertidal and subtidal habitats. The data are collected to provide information on population densities and distributions. Data reported may include: position, date, and time; sea surface temperature and salinity, sediment size analysis, habitat descriptors, and other supporting environmental data; sampling methods and equipment; species identification and organism counts and weights for any number of species; biological condition of individual specimens including age, sex, dimensions, diseases, and parasites; and stomach contents analysis. A text record is available for comments.



File Structure -

Seven 80-character records: (1) Station Header Record, (2) Sediment Size Analysis Record, (3) Biological Sample Description, (4) Species Identification Record, (5) Individual Fish Examination, (6) Stomach Contents Examination, and (7) Text Record.

File Format -

Intertidal/Subtidal Organisms and Habitats (File 100)

PARAMETER	DESCRIPTION	SC	FL
STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '1'	10	1
STATION	FIVE-CHARACTER STATION NUMBER (FILE TYPE 100 STATION CODE MAY BE USED)	11	5
SEQUENCE NUMBER	XXXX - ALWAYS '0001' INITIALLY, THEN ASCENDING NUMERICALLY UNTIL ANOTHER RECORD '1' IS ENCOUNTERED	16	4
BLANKS		20	3
DATE (GMT)	YYMMDD	23	6
TIME (GMT)	HHMM	29	4
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	33	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	39	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	40	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	47	1
TEMPERATURE	XXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE - DEG C TO TENTHS	48	3
SALINITY	XXX (PARTS PER THOUSAND TO TENTHS)	51	3
DISSOLVED OXYGEN	XXXX (PERCENT SATURATION TO TENTHS)	54	4
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	58	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	59	10
BLANKS		69	12
SEDIMENT SIZE ANALYSIS RECORD			
NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '2'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	THREE-CHARACTER UNIQUE SAMPLE ID	20	3
GEAR TYPE	TWO-CHARACTER CODE - USE NODC CODE 0075	23	2
SAMPLE ELEVATION	XXX - WITH RESPECT TO MEAN LOW WATER (METERS TO TENTHS - NO SIGN FOR POSITIVE, FLOATING "-" FOR NEGATIVE VALUES)	25	3
SAMPLE SURFACE AREA	XXXX (SQUARE METERS TO THOUSANDTHS)	28	4
DEPTH OF SAMPLE	XXX (WHOLE MILLIMETERS)	32	3
DRY WEIGHT	XXXXX - TOTAL WEIGHT (WHOLE GRAMS)	35	5
WEIGHT OF SHELL FRAGMENTS	XXXXX - DRY TOTAL WEIGHT (WHOLE GRAMS)	40	5
PARTICLE SIZE	THE FOLLOWING 12 FIELDS ARE USED TO REPORT PERCENT BY WEIGHT TO TENTHS (BY PHI SIZE)		
> -6	XXX	45	3
-6 TO -5	XXX	48	3
-5 TO -4	XXX	51	3
-4 TO -3	XXX	54	3
-3 TO -2	XXX	57	3
-2 TO -1	XXX	60	3
-1 TO 0	XXX	63	3
0 TO +1	XXX	66	3
+1 TO +2	XXX	69	3
+2 TO +3	XXX	72	3
+3 TO +4	XXX	75	3
> +4	XXX	78	3

BIOLOGICAL SAMPLE DESCRIPTION

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '3'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	THREE-CHARACTER UNIQUE QUADRANT OR HAUL	20	3
DATE (GMT)	YYMMDD	23	6
TIME (GMT)	HHMM	29	4
HABITAT:			
WAVE ENERGY	ONE-CHARACTER CODE - USE NODC CODE 0280	33	1
SEDIMENT SIZE	ONE-CHARACTER CODE - USE NODC CODE 0281	34	1
SURFACE ORGANICS	ONE-CHARACTER CODE - USE NODC CODE 0282	35	1
GEAR TYPE	TWO-CHARACTER CODE - USE NODC CODE 0075	36	2
SAMPLE ELEVATION	XXXX	38	4
DEPTH TO BOTTOM	XXX (METERS) HAULS ONLY	42	3
AREA SAMPLED	XXXXXXXX (SQUARE METERS TO THOUSANDTHS)	45	8
VOLUME SAMPLED	XXXXXXXXXX (CUBIC METERS TO TEN-THOUSANDTHS)	53	11
DISTANCED FISHED	XXX (METERS) HAULS ONLY	64	3
SAMPLING DURATION	XX (HOURS TO TENTHS) HAULS ONLY	67	2
TIDE STAGE	ONE-CHARACTER CODE - USE NODC CODE 0154	69	1
TIDE HEIGHT	XXX - WITH RESPECT TO MEAN LOWER LOW WATER (METERS TO TENTHS)	70	3
PLANT COVER	XXX - SAMPLE AREA COVERED BY PLANT GROWTH (WHOLE PERCENT)	73	3
PHOTO TAKEN	ONE-CHARACTER CODE - USE CODE 0117	76	1
BLANKS		77	4

SPECIES IDENTIFICATION RECORD

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '4'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	THREE-CHARACTER UNIQUE QUADRANT OR HAUL	20	3
TAXONOMIC CODE	10-CHARACTER CODE - FIRST 10 CHARACTERS OF NODC TAXONOMIC CODE (SEE STARTING COLUMN 56, BELOW)	23	10
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	33	1
SUBSAMPLE	XX - PERCENT OF SAMPLE USED FOR COUNT AND WEIGHT COMPUTATION FOR THIS SPECIES. (PERCENT AREA FOR QUADRANTS, PERCENT VOLUME FOR NET HAULS, OR BLANK IF NO SUBSAMPLE USED FOR COMPUTATION).	34	2
COUNT	XXXXX - NUMBER OF ORGANISMS OF THIS SPECIES FOR ENTIRE HAUL OR QUADRANT	36	5
WET WEIGHT	XXXXXXX - WET WEIGHT OF THIS SPECIES FOR ENTIRE HAUL OR QUADRANT (GRAMS TO HUNDREDTHS)	41	7
WEIGHT METHOD	ONE-CHARACTER CODE - USE NODC CODE 0156	48	1
DRY WEIGHT	XXXXXXX - GRAMS TO HUNDREDTHS OF ENTIRE HAUL OR QUADRANT	49	7
SUB-SPECIES	TWO-DIGIT EXTENSION OF 10-DIGIT NODC TAXONOMIC CODE (STARTING COLUMN 23, THIS RECORD)	56	2
BLANKS		58	2
TEXT	21-CHARACTER FIELD	60	21

INDIVIDUAL FISH EXAMINATION

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '5'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	THREE-CHARACTER UNIQUE QUADRANT OR HAUL	20	3
SPECIMEN NUMBER	TWO-CHARACTER SCIENTIST'S IDENTIFIER	23	2
TAXONOMIC CODE	TEN-DIGIT NODC TAXONOMIC CODE	25	10
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	35	1
NORMAL/ABNORMAL	ONE-CHARACTER CODE - USE NODC CODE 0073	36	1
PRESERVATION	ONE-CHARACTER CODE - USE NODC CODE 0072	37	1
LENGTH	ONE-CHARACTER CODE - USE NODC CODE 0082	38	1
ORGANISM LENGTH	XXXX - WHOLE MILLIMETERS	39	4
ROUND WEIGHT	XXXXXXX - WEIGHT BEFORE DRESSING (GRAMS TO HUNDREDTHS)	43	7
SEX	ONE-CHARACTER CODE - USE NODC CODE 0101	50	1

SEXUAL MATURITY	ONE-CHARACTER CODE - USE NODC CODE 0091	51	1
AGE METHOD	ONE-CHARACTER CODE - USE NODC CODE 0090	52	1
AGE	XX (WHOLE YEARS)	53	2
FIN ROT:	THE FOLLOWING 7 ONE-CHARACTER FIELDS ARE USED TO IDENTIFY THE EXTENT OF ROT ON VARIOUS FINS. EACH OF THE IDENTIFIED FINS REMAINS IN THE SAME POSITION ON EACH RECORD WITH THE CODE INDICATING THE EXTENT OF ROT:		
DORSAL	ONE-CHARACTER CODE - USE NODC CODE 0087	55	1
ANAL	ONE-CHARACTER CODE - USE NODC CODE 0087	56	1
CAUDAL	ONE-CHARACTER CODE - USE NODC CODE 0087	57	1
RIGHT PECTORAL	ONE-CHARACTER CODE - USE NODC CODE 0087	58	1
LEFT PECTORAL	ONE-CHARACTER CODE - USE NODC CODE 0087	59	1
RIGHT VENTRAL	ONE-CHARACTER CODE - USE NODC CODE 0087	60	1
LEFT VENTRAL	ONE-CHARACTER CODE - USE NODC CODE 0087	61	1
AEN TUMOR COUNT	THE NUMBER OF ANGIO EPITHELIAL NODULE TUMORS FOR:		
TOTAL	XX	62	2
EYED	XX	64	2
BLIND	XX	66	2
EP TUMOR COUNT	THE NUMBER OF EPIDERMAL PAPPILOMA FOR:		
TOTAL	XX	68	2
EYED	XX	70	2
BLIND	XX	72	2
PARASITE OCCURRENCE-ENDO	ONE-CHARACTER CODE - USE NODC CODE 0095	74	1
PARASITE OCCURRENCE-ECTO	ONE-CHARACTER CODE - USE NODC CODE 0095	75	1
BLANKS		76	5

STOMACH CONTENTS EXAMINATION

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '6'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	THREE-CHARACTER UNIQUE QUADRANT OR HAUL	20	3
SPECIMEN NUMBER	TWO-CHARACTER SCIENTIST'S IDENTIFIER	23	2
PREDATOR TAXONOMIC CODE	TEN-DIGIT NODC TAXONOMIC CODE	25	10
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	35	1
STOMACH FULLNESS	ONE-CHARACTER CODE - USE NODC CODE 0092	36	1
STOMACH DIGESTION	ONE-CHARACTER CODE - USE NODC CODE 0155	37	1
WEIGHT OF STOMACH CONTENTS	XXXXXX (GRAMS TO HUNDREDTHS)	38	6
PREY TAXONOMIC CODE	TEN-DIGIT NODC TAXONOMIC CODE	44	10
LIFE HISTORY	ONE-CHARACTER CODE - USE NODC CODE 0148	54	1
PREY COUNT	XXXX - NUMBER OF PREY ORGANISMS OF THIS SPECIES	55	4
WET WEIGHT OF PREY	XXXXXXX (GRAMS TO THOUSANDTHS)	59	7
WEIGHT METHOD	ONE-CHARACTER CODE - USE NODC CODE 0156	66	1
MISCELLANEOUS STOMACH CONTENTS	ONE-CHARACTER CODE - USE NODC CODE 0209	67	1
BLANK		68	13

TEXT RECORD

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '7'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
TEXT	61-CHARACTER FIELD FOR TEXT	20	61

SAMPLE RECORD

NODC FILE NUMBER	ALWAYS '100'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS '8'	10	1
STATION NUMBER	SEE RECORD '1'	11	5
SEQUENCE NUMBER	SEE RECORD '1'	16	4
SAMPLE NUMBER	SEE RECORD '2'	20	3
DATE	YYMMDD	23	6
TIME	HHMM	29	4
SAMPLE EFFECTIVENESS	ONE-CHARACTER CODE - USE NODC CODE 0402	33	1
SAMPLE DURATION	XXXX (WHOLE MINUTES)	34	4
COMPASS HEADING,START	XXX (WHOLE DEGREES)	38	3
LIGHT INTENSITY	ONE-CHARACTER CODE - USE NODC CODE 0403	41	1

CURRENT SPEED	XX (KNOTS TO TENTHS)	42	2
CURRENT DIRECTION	XXX (WHOLE DEGREES)	44	3
BLANKS		47	34

NODC Code Tables Used with this Format -

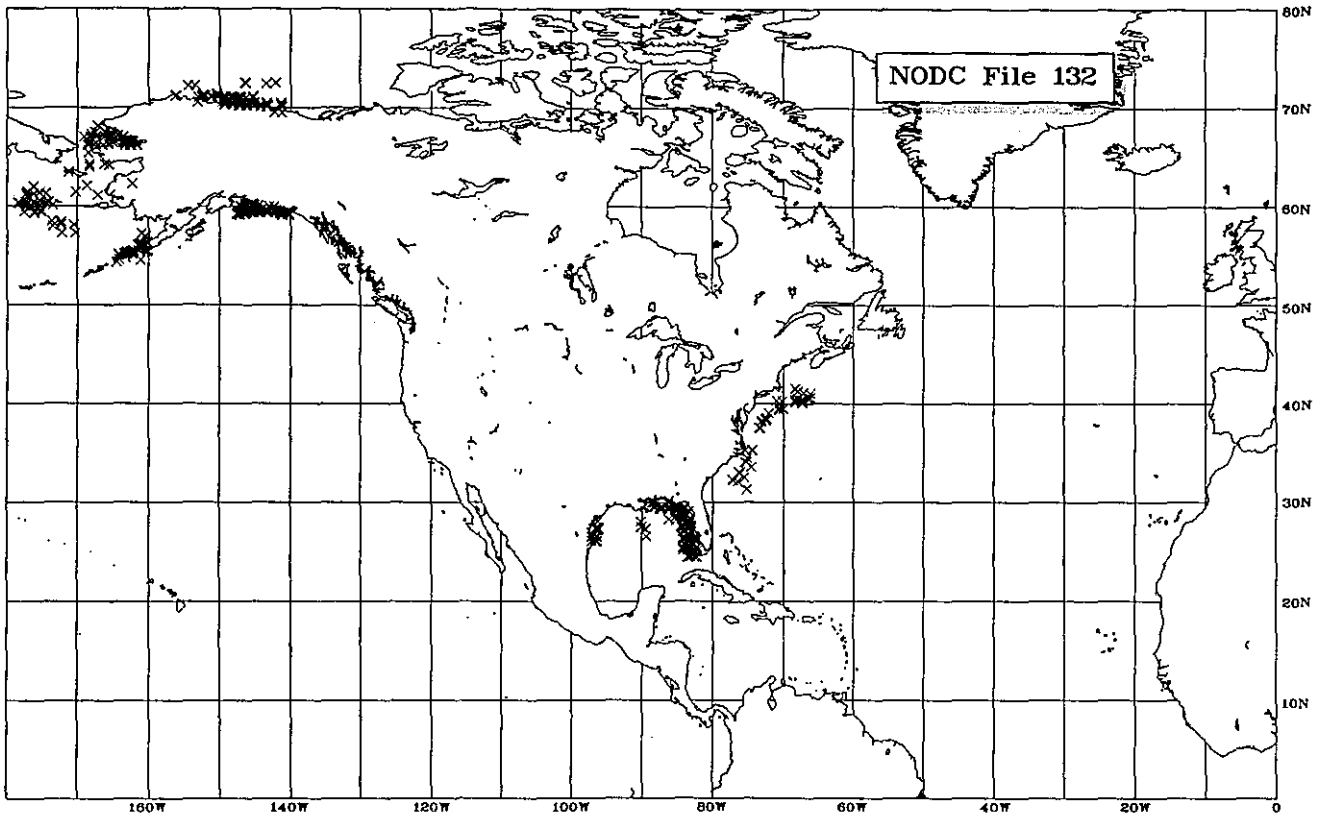
CODE NUMBER	CODE NAME
0072	PRESERVATION
0073	NORMAL/ABNORMAL
0075	GEAR TYPE (100)
0082	LENGTH
0087	FIN ROT
0090	AGE METHOD
0091	SEX MATURITY
0092	STOMACH FULLNESS
0095	COLLECTION
0101	SEX
0117	DECISION
0148	LIFE HISTORY
0154	TIDE STAGE
0155	STOMACH DIGESTION
0156	WEIGHT METHOD
0209	MISC. STOMACH (100)
0280	WAVE ENERGY
0281	SEDIMENT SIZE
0282	SURFACE ORGANICS
- -	NODC TAXONOMIC CODE

4.1.24 Benthic Organisms (F132)

Geographic area: U.S. east coast, Gulf coast, coastal Alaska

Time period: 1971 - 1976

This file contains data from field sampling or surveys of bottom dwelling marine organisms. The data provide information on species abundance, distribution, and biomass; they may have been collected by point sampling (grab or core), by tow (dredge, trawl, or net), by photographic surveys, or by other methods. Cruise information such as vessel, start and end dates, investigator, and institution/agency; station numbers, positions, and times; and equipment and methods are reported for each survey. Environmental data reported at each sampling site may include meteorological and sea surface conditions; surface and bottom temperature, salinity, and dissolved oxygen; and sediment characteristics. Number of individual organisms and total weight of organisms is reported for each species. A text record is available for comments.



File Structure -

Seven 80-character records: (1) Header Record, (2) Station Header Record (Tows), (3) Station Header Record (Point Sampling), (4) Environmental Record, (5) Bottom Characteristics Record, (6) Taxonomic Data Record, and (7) Text Record.

File Format -

Benthic Organisms (File 132)

PARAMETER	DESCRIPTION	SC	EL
HEADER RECORD			
NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A' - THIS RECORD SHOULD BE SUBMITTED ONLY ONCE FOR EACH DISCRETE DATA SET (FILE ID).	10	1
BLANKS		11	5
VESSEL/PLATFORM NAME	11-CHARACTER FIELD TO IDENTIFY THE SURVEY PLATFORM NAME	16	11
CRUISE/SURVEY ID	SIX-CHARACTER FIELD ASSIGNED BY ORIGINATOR TO IDENTIFY THE CRUISE OR SURVEY	27	6
SURVEY DATE - FROM	YYMMDD - START DATE	33	6
SURVEY DATE - TO	YYMMDD - END DATE	39	6
INVESTIGATOR	17-CHARACTER FIELD TO IDENTIFY INVESTIGATING SCIENTIST OR OTHER DATA SOURCE	45	17
INSTITUTION OR AGENCY	15-CHARACTER FIELD TO IDENTIFY NAME OF INVESTIGATOR'S INSTITUTION	62	15
BLANKS		77	4
STATION HEADER RECORD (TOWS)			
NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B' - THIS RECORD IS MANDATORY FOR POSITION AND DATE OF TOWS AND SHOULD BE USED TO DESCRIBE METHODS FOR TOW-TYPE SAMPLING SUCH AS DREDGES, TRAWLS, SLED-MOUNTED CAMERAS, ETC.	10	1
STATION NUMBER	5-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR THAT THAT IDENTIFIES AL RECORD TYPES ASSOCIATED WITH THIS STATION. THE STATION NUMBER REPRESENTS A FIXED LOCATION AND DATE/TIME AND CANNOT BE DUPLICATED. EVERY NEW RECORD TYPE 'B' MUST HAVE A NEW STATION NUMBER WITHIN A CRUISE OR SURVEY	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
OBSERVED DATE (GMT)	YYMMDD - AT START OF TOW	31	6
OBSERVED TIME (GMT)	HHMM - AT START OF TOW	37	4
BOTTOM TYPE	TWO-CHARACTER CODE - GENERAL DESCRIPTION OF THE BOTTOM FOR THE TOW, USE NODC CODE 0077	41	2
EQUIPMENT CODE	THREE-CHARACTER CODE - USE NODC CODE 0185	43	3
TOW DIRECTION	XXX - 'TOWARD' DIRECTION OF TOW (WHOLE DEGREES)	46	3
TOW DURATION	XXX - LENGTH OF TIME OF TOW (HOURS TO HUNDREDTHS)	49	3
START DEPTH	XXXX -DEPTH TO BOTTOM AT START OF TOW (WHOLE METERS)	52	4
END DEPTH	XXXX - DEPTH TO BOTTOM AT END OF TOW (WHOLE METERS)	56	4
WIRE LENGTH	XXXX - LENGTH OF WINCH WIRE (WHOLE METERS)	60	4
WIRE ANGLE	XX - ANGLE OF WINCH WIRE FROM THE VERTICAL (WHOLE DEGREES)	64	2
AREA SAMPLED	XXXXXXX - AREA SAMPLED BY TOW (SQUARE METERS TO HUNDREDTHS)	66	7
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	73	1
BLANKS		74	3
SEQUENCE NUMBER	XXXX - ASCENDING NUMERIC USED TO ORDER RECORDS WITHIN EACH STATION NUMBER	77	4

STATION HEADER RECORD (POINT SAMPLING)

NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C' - THIS RECORD IS MANDATORY FOR POSITION AND DATE OF POINT SAMPLING AND SHOULD BE USED TO DESCRIBE THE EQUIPMENT FOR STATIONS OF POINT SAMPLING SUCH AS GRABS AND CORES.	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	22	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	30	1
OBSERVED DATE (GMT)	YYMMDD	31	6
OBSERVED TIME (GMT)	HHMM	37	4
EQUIPMENT CODE	ONE-CHARACTER CODE FOR METHOD OF SAMPLE COLLECTION - USE NODC CODE 0309	41	1
SCREEN MESH SIZE	XXXX - SMALLEST MESH SIZE OF SIEVE USED (MILLIMETERS TO HUNDREDTHS)	42	4
SURFACE AREA	XXXX - SURFACE AREA OF CORE OR GRAB (SQUARE METERS TO THOUSANDTHS)	46	4
PENETRATION DEPTH	XXXX - DEPTH OF PENETRATION OF CORE OR GRAB (CENTIMETERS TO TENTHS)	50	4
SAMPLE VOLUME	XXXX - TOTAL VOLUME OF ALL REPLICATES SAMPLED (LITERS TO TENTHS)	54	2
NUMBER OF REPLICATES	XX - TOTAL COLLECTED AT THIS STATION WHICH MAKE UP THE SAMPLE VOLUME	58	2
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	60	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	61	10
BLANKS		71	6
SEQUENCE NUMBER	XXXX - SEE RECORD 'B'	77	4

ENVIRONMENTAL RECORD

NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D' - THIS RECORD IS USED TO DESCRIBE SURFACE ENVIRONMENTAL CONDITIONS FOR EACH STATION.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
BAROMETRIC PRESSURE	XXXXX (MILLIBARS TO TENTHS)	16	5
DRY BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEGREES C TO TENTHS)	21	4
WET BULB TEMPERATURE	XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TOTEMPERATURE VALUE (DEGREES C TO TENTHS)	25	4
WIND DIRECTION	TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE 0110	29	2
WIND SPEED	XX (WHOLE KNOTS)	31	2
SEA DIRECTION	TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE 0110	33	2
SEA HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	35	1
SWELL DIRECTION	TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE 0110	36	2
SWELL HEIGHT	ONE-CHARACTER CODE - USE NODC CODE 0104	38	1
WEATHER	ONE-CHARACTER CODE - USE NODC CODE 0108	39	1
CLOUD TYPE	ONE-CHARACTER CODE - USE NODC CODE 0053	40	1
CLOUD COVER	ONE-CHARACTER CODE - USE NODC CODE 0105	41	1
VISIBILITY	ONE-CHARACTER CODE - USE NODC CODE 0157	42	1
TRANSPARENCY	XXXX - SECCHI DISC DEPTH (METERS TO TENTHS)	43	4
TURBIDITY	ONE-CHARACTER CODE - USE NODC CODE 0094	47	1
SURFACE WATER TEMPERATURE	XXXXX (DEGREES C TO THOUSANDTHS)	48	5
SURFACE SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	53	5
SURFACE DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	58	4
BLANKS		62	15
SEQUENCE NUMBER	XXXX - SEE RECORD 'B'	77	4

BOTTOM CHARACTERISTICS RECORD

NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6

RECORD NUMBER	ALWAYS 'E' - THIS RECORD IS USED TO DESCRIBE ENVIRONMENTAL CONDITIONS OF THE BOTTOM AND CORE INFORMATION.	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	XXXXX - UNIQUE SAMPLE IDENTIFIER ASSIGNED BY THE ORIGINATOR WITHIN EACH STATION	16	5
REPLICATE NUMBER	XX - UNIQUE REPLICATE IDENTIFIER WITHIN EACH SAMPLE AND/OR STATION NUMBER	21	2
CORE SEGMENT IDENTIFIER	XXXX - UNIQUE IDENTIFIER FOR EACH SEGMENT IN A CORE FOR EACH REPLICATE OR SAMPLE	23	4
CORE SEGMENT START DEPTH	XXX - TOP DEPTH OF CORE SEGMENT (CENTIMETERS TO TENTHS)	27	3
CORE SEGMENT STOP DEPTH	XXX - BOTTOM DEPTH OF CORE SEGMENT (CENTIMETERS TO TENTHS).	30	3
BOTTOM TEMPERATURE	XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEGREES C TO THOUSANDTHS)	33	5
BOTTOM SALINITY	XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)	38	5
BOTTOM DISSOLVED OXYGEN	XXXX (MILLILITERS/LITER TO HUNDREDTHS)	43	4
SEDIMENT ORGANIC CARBON	XXXX (PERCENT BY WEIGHT TO HUNDREDTHS)	47	4
SEDIMENT TOTAL CARBON	XXXX (PERCENT BY WEIGHT TO HUNDREDTHS)	51	4
GRAVEL	XXX (PERCENT BY WEIGHT TO TENTHS)	55	3
SAND	XXX (PERCENT BY WEIGHT TO TENTHS)	58	3
SILT	XXX (PERCENT BY WEIGHT TO TENTHS)	61	3
CLAY	XXX (PERCENT BY WEIGHT TO TENTHS)	64	3
AVERAGE PHI SIZE	XXX - OF SEDIMENT (TO TENTHS)	67	3
BLANKS		70	7
SEQUENCE NUMBER	XXXX - SEE RECORD 'B'	77	4

TAXONOMIC DATA RECORD

NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F' - THIS RECORD IS USED TO REPORT THE NUMBER AND WEIGHT OF EACH TAXON COLLECTED WITHIN A SAMPLE.	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	XXXXX - SEE RECORD 'E'	16	5
REPLICATE NUMBER	XX - SEE RECORD 'E'	21	2
CORE SEGMENT IDENTIFIER	XXXX - SEE RECORD 'E'	23	4
TAXONOMIC CODE	12-DIGIT CODE - USE NODC TAXONOMIC CODE - IF SPECIES CODE IS NOT AVAILABLE, CONTACT NODC FOR CODE ASSIGNMENT. DO NOT INDEPENDENTLY ASSIGN CODES TO NEW SPECIES OR SPECIES WHOSE CODES HAVE NOT YET BEEN ASSIGNED.	27	12
NUMBER OF INDIVIDUALS	XXXXX - TOTAL NUMBER OF INDIVIDUALS PER SPECIES FOR SAMPLE UNIT MEASURED	39	5
QUALITATIVE CODE	ONE-CHARACTER CODE - USED TO DESCRIBE TAXON QUALITY AS IT PERTAINS TO COUNT OR WEIGHT MEASUREMENTS - USE NODC CODE 0012	44	1
WET WEIGHT	XXXXXXXXX - TOTAL WET WEIGHT OF INDIVIDUALS FOR SPECIES REPORTED ABOVE (GRAMS TO THOUSANDTHS)	45	9
ASH-FREE WEIGHT	XXXXXX - TOTAL ASH-FREE DRY WEIGHT OF INDIVIDUALS FOR SPECIES REPORTED ABOVE (GRAMS TO THOUSANDTHS)	54	6
CORRECTED WEIGHT	XXXXXXX - DIFFERENCE BETWEEN WET AND ASH-FREE WEIGHTS (GRAMS TO THOUSANDTHS)	60	7
DATE OF WEIGHING	YYMMDD - DATE OF WEIGHING OF SAMPLE	67	6
BLANKS		73	4
SEQUENCE NUMBER	XXXX - SEE RECORD 'B'	77	4

TEXT RECORD

NODC FILE NUMBER	ALWAYS '132'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'T'	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SAMPLE NUMBER	XXXXX - SEE RECORD 'E'	16	5
REPLICATE NUMBER	XX - SEE RECORD 'E'	21	2
CORE SEGMENT IDENTIFIER	XXXX - THIS FIELD, THE REPLICATE NUMBER FIELD AND THE NUMBER FIELD MAY BE USED TO DEFINE THE SPECIFICITY OF THE COMMENTS. IF THE TEXT ARE ASSOCIATED WITH A STATION AS A WHOLE THE ABOVE FIELDS SHOULD BE LEFT BLANK. IF THE TEXT ARE ASSOCIATED WITH THE ENTIRE SURVEY AS A WHOLE, THE STATION, SAMPLE, REPLICATE AND CORE SEGMENT NUMBERS SHOULD BE LEFT BLANK.	23	4
TEXT	50-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION	27	50
SEQUENCE NUMBER	XXXX - SEE RECORD 'B'	77	4

NODC Code Tables Used with this Format -

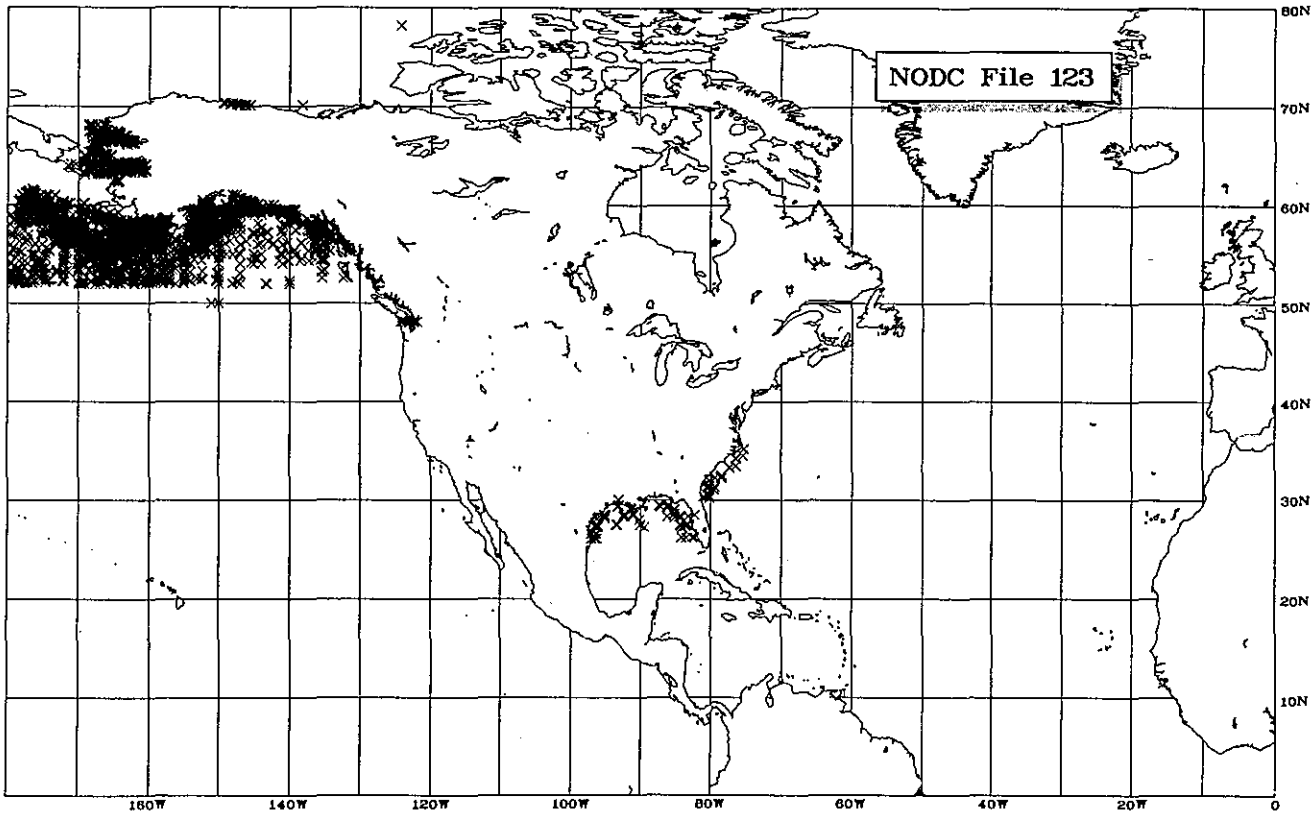
CODE NUMBER	CODE NAME
0012	QUALITATIVE
0053	CLOUD TYPE (WMO 500)
0077	BOTTOM TYPE
0094	TURBIDITY
0104	WAVE HEIGHT (WMO 1555)
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0110	WIND-WAVE DIRECTION
0157	VISIBILITY (WMO 4300)
0185	EQUIPMENT
--	NODC TAXONOMIC CODE

4.1.25 Fish/Shellfish Surveys (F123)

Geographic area: Coastal Alaska and adjacent waters, Puget Sound, U.S. Gulf coast, southeast U.S. coast

Time period: 1948 - 1984

This file contains data from field sampling of marine fish and shellfish. The data derive from analyses of midwater or bottom tow catches and provide information on population density and distribution. Cruise information, position, date, time, gear type, fishing distance and duration, and number of hauls are reported for each survey. Environmental data may include meteorological conditions, surface and bottom temperature and salinity, and current direction and speed. Bottom trawl or other gear dimensions and characteristics are also reported. Catch statistics (e.g., weight, volume, number of fish per unit volume) may be reported for both total haul and for individual species. Biological characteristics of selected specimens, predator/prey information (from stomach contents analysis), and growth data may also be included. A text record is available for comments.



File Structure -

Seventeen 80-character records: (1) Cruise Header Record, (2) Station Header Record, (3) Environment Record, (4) Bottom Trawl Record, (5) Individual Sample Record, (6) Miscellaneous Gear Record, (7) Length-Frequency Record, (8) Average Catch Record, (9) Individual Species Catch Record, (10) Individual Specimen Record (Fish), (11) Individual Specimen Record (Crustacean), (12) Individual Predator Record, (13) Prey Record-Individual Predator, (14) Predator Summary Record, (15) Prey Summary Record, (16) Text Record, and (17) Growth Record.

File Format -

Fish/Shellfish Surveys (File 123)

PARAMETER	DESCRIPTION	SC	FL
CRUISE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A' - THIS RECORD SHOULD BE USED ONLY ONCE FOR EACH FILE ID. INFORMATION SHOULD AGREE WITH THAT IN THE DOCUMENTATION THAT ACCOMPANIES THE DATA.	10	1
VESSEL/PLATFORM NAME	11-CHARACTER FIELD	11	11
CRUISE NUMBER	SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR	22	6
START DATE OF SURVEY	YYMMDD	28	6
END DATE OF SURVEY	YYMMDD	34	6
INVESTIGATOR, SCIENTIST OR DATA SOURCE	15-CHARACTER FIELD IDENTIFYING DATA SOURCE	40	15
INSTITUTION OR AGENCY	15-CHARACTER FIELD IDENTIFYING ORGANIZATION	55	15
AGENCY CODE	TWO-CHARACTER CODE - USE NODC CODE 0079	70	2
VESSEL CODE	TWO-CHARACTER CODE - USE NODC CODE 0133 - THESE TWO CODE FIELDS ARE INCLUDED PRIMARILY TO PERMIT CONVERSION OF DATA PREVIOUSLY SUBMITTED IN FILE TYPE 023. IT IS RECOMMENDED THAT THE INVESTIGATOR AND INSTITUTION NAME FIELDS BE UTILIZED WHERE POSSIBLE RATHER THAN THE CODE FIELDS WHEN SUBMITTING DATA IN THIS FORMAT.	72	2
BLANKS		74	7
STATION HEADER RECORD			
NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B' - THIS RECORD INCLUDES MANDATORY FIELDS FOR POSITION, DATE, AND FISHING DATA THAT PERMITS THE DETERMINATION OF CATCH STATISTICS AND OTHER DATA PRODUCTS. ONLY ONE RECORD FOR EACH STATION NUMBER SHOULD BE SUBMITTED.	10	1
STATION NUMBER	SIX-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR WHICH MUST BE UNIQUE WITHIN A FILE ID. REOCCUPATION OF STATIONS WITHIN THE SAME CRUISE OR SURVEY CAN BE MODIFIED BY PREFIXING ALPHA-CHARACTERS (E.G., STATION 1, A1,B1,C1,ETC)	11	6
HAUL NUMBER	THREE-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR	17	3
NUMBER OF HAULS	XXX - INDICATES THE TOTAL NUMBER OF HAULS TAKEN AT A STATION - ENTRY WILL BE REPEATED FOR MULTIPLE HAULS PER STATION	20	3
LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	23	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	29	1
LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	30	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	37	1
DATE (GMT)	YYMMDD	38	6
TIME (GMT)	XXXX (HOURS AND MINUTES)	44	4
GEAR TYPE	TWO-CHARACTER CODE - USE NODC CODE 0129	48	2
FISHING DURATION	XXX (HOURS TO TENTHS)	50	3
DISTANCE FISHED	XXXX (KILOMETERS TO TENTHS)	53	4
DIRECTION OF TOW	ONE-CHARACTER CODE - USE NODC CODE 0096	57	1

PERFORMANCE	ONE-CHARACTER CODE - USE NODC CODE 0131	58	1
FISHING DURATION	XXX (MINUTES)	59	3
DISTANCE FISHED	XXXX (METERS)	62	4
SALINITY METHOD	ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)	66	1
STATION IDENTIFIER	10-CHARACTER ORIGINATOR STATION IDENTIFIER	67	10
SEQUENCE NUMBER	XXXX - USED FOR SORTING ALL RECORDS WITHIN A STATION OR A FILE ID	77	4

ENVIRONMENT RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C' - THIS RECORD CONTAINS ENVIRONMENTAL DATA RELATED TO EACH STATION. ONLY ONE RECORD FOR EACH STATION SHOULD BE SUBMITTED	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
GEAR DEPTH	XXXX (WHOLE METERS)	20	4
GEAR TEMPERATURE	XXXX - TEMPERATURE AT GEAR DEPTH - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)	24	4
GEAR SALINITY	XXXX - SALINITY AT GEAR DEPTH (PARTS PER THOUSAND TO HUNDREDTHS)	28	4
AVERAGE BOTTOM DEPTH	XXXX - AVERAGE DEPTH FOR THE STATION (WHOLE METERS)	32	4
BOTTOM TYPE	TWO-CHARACTER CODE - USE NODC CODE 0077	36	2
SOUNDING RECORD	ONE-CHARACTER CODE - USE NODC CODE 0165	38	1
BOTTOM TEMPERATURE	XXXX - WATER TEMPERATURE ON THE OCEAN BOTTOM - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)	39	4
BOTTOM SALINITY	XXXX - WATER SALINITY ON THE OCEAN BOTTOM (PARTS PER THOUSAND TO HUNDREDTHS)	43	4
SURFACE TEMPERATURE	XXXX - SEA SURFACE TEMPERATURE - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)	47	4
SURFACE SALINITY	XXXX - SEA SURFACE SALINITY (PARTS PER THOUSAND TO HUNDREDTHS)	51	4
TRANSPARENCY	XXX - SECCHI DISC DEPTH (METERS TO TENTHS)	55	3
TIDE HEIGHT	XXX - HEIGHT WITH RESPECT TO MEAN LOWER LOW WATER PRECEDED BY MINUS SIGN WHERE APPLICABLE (METERS TO TENTHS)	58	3
TIDE STAGE	ONE-CHARACTER CODE - USE NODC CODE 0154	61	1
AIR TEMPERATURE	XXXX - AIR TEMPERATURE AT THE STATION LOCATION - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)	62	4
WEATHER	ONE-CHARACTER CODE - USE NODC CODE 0108	66	1
CLOUD AMOUNT	ONE-CHARACTER CODE - USE NODC CODE 0105	67	1
SEA STATE	ONE-CHARACTER CODE - USE NODC CODE 0109	68	1
WIND DIRECTION (FROM)	ONE-CHARACTER CODE - USE NODC CODE 0096	69	1
WIND FORCE (BEAUFORT)	ONE-CHARACTER CODE - USE NODC CODE 0052	70	1
CURRENT DIRECTION (TOWARD)	ONE-CHARACTER CODE - USE NODC CODE 0096	71	1
CURRENT SPEED	XX (METERS PER SECOND TO TENTHS)	72	2
BLANKS		74	3
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

BOTTOM TRAWL RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D' - THIS RECORD IS TO BE USED ONLY FOR BOTTOM TRAWLS. RECORD TYPE 'E' IS TO BE USED FOR ALL OTHER TYPES OF STUDIES.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
GEAR DEPTH	XXXX (WHOLE METERS) - SAME AS RECORD 'C'	20	4
GEAR TYPE	TWO-CHARACTER CODE - USE NODC CODE 0129	24	2
BOTTOM TRAWL TYPE	TWO-CHARACTER CODE - USE NODC CODE 0076	26	2
BOTTOM TRAWL ACCESORIES	TWO-CHARACTER CODE - USE NODC CODE 0124	28	2
OPENING HEIGHT OF TRAWL	XXX (METERS TO TENTHS)	30	3
OPENING WIDTH OF TRAWL	XXX (METERS TO TENTHS)	33	3
OVERALL LENGTH	XXX (WHOLE METERS)	36	3
CODEND LENGTH	XX (WHOLE METERS)	39	2
FOOT ROPE LENGTH	XX (WHOLE METERS)	41	2

HEAD ROPE LENGTH	XX (WHOLE METERS)	43	2
GEAR MATERIAL	ONE-CHARACTER CODE - USE NODC CODE 0078	45	1
OPENING MESH	ONE-CHARACTER CODE - USE NODC CODE 0130	46	1
AVERAGE BODY MESH	ONE-CHARACTER CODE - USE NODC CODE 0130	47	1
CODEND MESH	ONE-CHARACTER CODE - USE NODC CODE 0130	48	1
CODEND LINER	ONE-CHARACTER CODE - USE NODC CODE 0324	49	1
NUMBER OF FLOATS	XX	50	2
FLOAT DIAMETER	XX (WHOLE CENTIMETERS)	52	2
TICKLER	ONE-CHARACTER CODE - USE NODC CODE 0324	54	1
ROLLER GEAR	ONE-CHARACTER CODE - USE NODC CODE 0324	55	1
LENGTH OF BRIDLES	XXX (WHOLE METERS)	56	3
LENGTH OF DOORS	XX (METERS TO TENTHS)	59	2
WIDTH OF DOORS	XX (METERS TO TENTHS)	61	2
WARP LENGTH	XXXX (WHOLE METERS)	63	4
SCOPE OF WARP	XXXX (WHOLE METERS)	67	4
BLANKS		71	6
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

MISC GEAR RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'E' - THIS RECORD IS TO BE USED FOR CATCHES OTHER THAN BOTTOM TRAWL STUDIES. THE GEAR DEPTH FIELD IS REDUNDANT FOR RECORDS 'C', 'D', 'E' TO ASSURE THAT THIS INFORMATION IS SUBMITTED IN CASES WHERE NO ENVIRONMENTAL DATA MAY BE AVAILABLE.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
GEAR DEPTH	XXXX (WHOLE METERS) - SAME AS RECORD 'C'	20	4
GEAR TYPE	TWO-CHARACTER CODE - USE CODE 0129	24	2
NET DEPTH	XX - DEPTH OF GILLNET SHACKLES OR SEINE (WHOLE METERS)	26	2
UNIT LENGTH	XXXX - OVERALL LENGTH, LENGTH/SKATE OR LENGTH/SHACKLE (WHOLE METERS)	28	4
NUMBER OF UNITS	XX - NUMBER OF SKATES, SHACKLES, TROLL LINES, HANDLINES, ETC	32	2
NUMBER OF SUBUNITS	XX - NUMBER OF GANGION/SKATE, HOOKS/LINE, ETC.	34	2
GEAR MATERIAL	ONE-CHARACTER CODE - USE NODC CODE 0078	36	1
BAIT/LURE	ONE-CHARACTER CODE - USE NODC CODE 0167	37	1
TYPE OF LURE	ONE-CHARACTER CODE - USE NODC CODE 0353	38	1
SEINE MESH - TOWING	ONE-CHARACTER CODE - USE NODC CODE 0130	39	1
SEINE MESH - UPPER	ONE-CHARACTER CODE - USE NODC CODE 0130	40	1
SEINE MESH - AVG BODY	ONE-CHARACTER CODE - USE NODC CODE 0130	41	1
SEINE MESH - BUNT	ONE-CHARACTER CODE - USE NODC CODE 0130	42	1
SEINE MESH - OUTSIDE	ONE-CHARACTER CODE - USE NODC CODE 0130	43	1
SEINE MESH - MIDDLE	ONE-CHARACTER CODE - USE NODC CODE 0130	44	1
SEINE MESH - BAG	ONE-CHARACTER CODE - USE NODC CODE 0130	45	1
NUMBER OF SHACKLES (IST GILLNET)	XX	46	2
MATERIAL (IST GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0078	48	1
MESH (IST GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0130	49	1
NUMBER OF SHACKLES (2ND GILLNET)	XX	50	2
MATERIAL (2ND GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0078	52	1
MESH (2ND GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0130	53	1
NUMBER OF SHACKLES (3RD GILLNET)	XX	54	2
MATERIAL (3RD GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0078	56	1
MESH (3RD GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0130	57	1
NUMBER OF SHACKLES (4TH GILLNET)	XX	58	2
MATERIAL (4TH GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0078	60	1
MESH (4TH GILLNET)	ONE-CHARACTER CODE - USE NODC CODE 0130	61	1
NUMBER OF SHACKLES - TRAMMEL NET	XX	62	2
OUTER PANEL MATERIAL - TRAMMEL NET	ONE-CHARACTER CODE - USE NODC CODE 0078	64	1
OUTER PANEL MESH - TRAMMEL NET	ONE-CHARACTER CODE - USE NODC CODE 0130	65	1
INNER PANEL MATERIAL - TRAMMEL NET	ONE-CHARACTER CODE - USE NODC CODE 0078	66	1
INNER PANEL MESH - TRAMMEL NET	ONE-CHARACTER CODE - USE NODC CODE 0130	67	1
BLANKS		68	9
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

TOTAL CATCH RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F' - THIS RECORD IS TO BE USED TO RECORD GENERAL INFORMATION ON CATCHES WITHOUT REGARD TO SPECIES	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
TOTAL WET WEIGHT OF CATCH	XXXXXXXXX - WEIGHT OF ALL SPECIES (WHOLE GRAMS OR KILOGRAMS TO THOUSANDTHS)	20	9
WEIGHT DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0161	29	1
TOTAL NUMBER	XXXXXX - TOTAL FOR ALL SPECIES	30	6
NUMBER DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0162	36	1
VOLUME OF CATCH	XXXXX - USED PRIMARILY FOR SMALL CATCHES (WHOLE MILLILITERS)	37	5
NUMBER OF FISH PER LITER	XXXX - NUMBER FOR ALL SPECIES COMBINED	42	4
NUMBER OF SPECIES EXAMINED	XXXX - NUMBER EXAMINED FROM TOTAL CATCH	46	4
BLANKS		50	27
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

LENGTH/FREQUENCY RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'G' - THIS RECORD PROVIDES FOR REPORTING LENGTH/FREQUENCY DATA FOR INDIVIDUAL SAMPLES OF A GIVEN SPECIES WITHIN EACH HAUL	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	FOUR-CHARACTER FIELD FOR IDENTIFYING SUBSAMPLES OF EACH HAUL	20	4
BLANKS	BLANKS INSERTED HERE TO ALLOW FOR TAXONOMIC CODE FIELD TO OCCUR IN THE SAME POSITION IN ALL RECORD TYPES	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE - ALSO USED IN RECORDS 'H' THRU 'Q'	28	12
PREDOMINATE SEX OF SAMPLE	ONE-CHARACTER CODE - USE NODC CODE 0101	40	1
PREDOMINATE AGE OF SAMPLE	XX - AGE IN YEARS	41	2
AGE METHOD	ONE-CHARACTER CODE - USE NODC CODE 0090	43	1
LENGTH OF CLASS	XXXX (WHOLE MILLIMETERS)	44	4
LENGTH CODE	ONE-CHARACTER CODE - USE NODC CODE 0082	48	1
LENGTH FREQUENCY	XXXX - NUMBER OF EACH SPECIES IN LENGTH CLASS INDICATED ABOVE	49	4
LENGTH SAMPLE	ONE-CHARACTER CODE - USE NODC CODE 0169	53	1
BLANKS		54	23
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

AVERAGE CATCH RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'H' - THIS RECORD IS TO BE USED PRINCIPALLY TO CONVERT HISTORICAL DATA AND DATA THAT USES THE RECORD MODIFIER SCHEME FOR THE EARLIER FILE TYPE 023.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
BLANKS	SAME AS RECORD 'G' NOTE	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	28	12
AVERAGE WET WEIGHT OF CATCH/SPECIES	XXXXXXXXX - WEIGHT FOR EACH SPECIES (WHOLE GRAMS OR KILOGRAMS TO THOUSANDTHS)	40	9
WEIGHT DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0161	49	1
AVERAGE NUMBER IN CATCH/SPECIES	XXXXXX - NUMBER FOR EACH SPECIES	50	6
NUMBER DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0162	56	1
PREDOMINATE SEX OF CATCH	ONE-CHARACTER CODE - USE NODC CODE 0101	57	1
PREDOMINATE AGE OF CATCH	XX - AGE IN YEARS	58	2
AGE METHOD	ONE-CHARACTER CODE - USE NODC CODE 0090	60	1
NUMBER OF DAYS	XX - NUMBER OF DAYS USED TO DETERMINE THE AVERAGE CATCH	61	2

NUMBER OF SPECIES EXAMINED	XXXX - NUMBER OF 'H' RECORDS SHOULD EQUAL THE NUMBER OF SPECIES EXAMINED	63	4
BLANKS		67	10
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

INDIVIDUAL SPECIES CATCH RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'J' - THIS RECORD CAN BE USED TO REPRESENT A SUBSET OF THE CATCH FOR EACH SPECIES IDENTIFIED, COUNTED AND WEIGHED FOR EACH SAMPLE.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
BLANKS	SAME AS RECORD 'G' NOTE	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	28	12
TOTAL WET WEIGHT	XXXXXXXXX - TOTAL WET WEIGHT FOR EACH SPECIES (GRAMS OR KILOGRAMS TO THOUSANDTHS)	40	9
WEIGHT DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0161	49	1
TOTAL NUMBER FOR SPECIES	XXXXXX - NUMBER FOR EACH SPECIES	50	6
NUMBER DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0162	56	1
VOLUME OF CATCH	XXXXX - VOLUME FOR INDIVIDUAL SPECIES (WHOLE MILLILITERS)	57	5
NUMBER OF FISH PER LITER	XXXX - NUMBER FOR INDIVIDUAL SPECIES	62	4
PREDOMINATE SEX OF EACH SPECIES	ONE-CHARACTER CODE - USE NODC CODE 0101	66	1
PREDOMINATE AGE OF EACH SPECIES	XX - AGE IN YEARS	67	2
AGE METHOD	ONE-CHARACTER CODE - USE NODC CODE 0090	69	1
BLANKS		70	7
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

INDIVIDUAL SPECIMEN RECORD (FISH)

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'K' - THIS RECORD IS ONE OF FOUR THAT LINKS DATA TO THE SPECIMEN LEVEL AND IS NEARLY IDENTICAL TO RECORD 'L' FOR CRUSTACEANS. MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH SAMPLE USING THE SPECIMEN NUMBER FIELD.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	FOUR-CHARACTER FIELD - USED TO IDENTIFY INDIVIDUAL SPECIMEN SAMPLES AND TO LINK TO PREDATOR DATA WHERE AVAILABLE	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	28	12
SEX	ONE-CHARACTER CODE - USE NODC CODE 0101	40	1
SEX MATURITY	ONE-CHARACTER CODE - USE NODC CODE 0091	41	1
LENGTH OF INDIVIDUAL	XXXX (WHOLE MILLIMETERS)	42	4
LENGTH CODE	ONE-CHARACTER CODE - USE NODC CODE 0082	46	1
WET WEIGHT OF INDIVIDUAL	XXXXXX (GRAMS TO TENTHS)	47	7
WEIGHT DETERMINATION	ONE-CHARACTER CODE - NOTE DIFFERENT CODE THAN RECORDS 'F' AND 'H' - USE NODC CODE 0163	54	1
AGE OF INDIVIDUAL	XX - AGE IN YEARS	55	2
AGE METHOD (STRUCTURE)	ONE-CHARACTER CODE - USE NODC CODE 0090	57	1
AGE DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0170	58	1
SAMPLE TYPE	ONE-CHARACTER CODE - USE NODC CODE 0171	59	1
DATA TYPE	ONE-CHARACTER CODE - USE NODC CODE 0126	60	1
STOMACH EXAMINED	ONE-CHARACTER CODE - USE NODC CODE 0117	61	1
GUT COLLECTED	ONE-CHARACTER CODE - USE NODC CODE 0117	62	1
FIN CLIP	TWO-CHARACTER CODE - USE NODC CODE 0172	63	2
GONAD OR OVARIAN WEIGHT	XXXXX (GRAMS TO HUNDREDTHS)	65	5
GONAD-SOMATIC INDEX	XXXX (EXPRESSED TO HUNDREDTHS) - RATIO OF GONAD TO WHOLE BODY WEIGHT	70	4
EGG COLOR	ONE-CHARACTER CODE - USE NODC CODE 0127	74	1
EGG CONDITION	ONE-CHARACTER CODE - USE NODC CODE 0128	75	1
CLUTCH SIZE	ONE-CHARACTER CODE - USE NODC CODE 0125	76	1
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

INDIVIDUAL SPECIMEN RECORD (CRUSTACEAN)

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'L' - THIS RECORD IS SIMILAR TO RECORD 'K' FOR FISH DATA. MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH SAMPLE USING THE SPECIMEN NUMBER FIELD.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	FOUR-CHARACTER FIELD - USED TO IDENTIFY INDIVIDUAL SPECIMEN SAMPLES AND TO LINK TO PREDATOR DATA WHERE AVAILABLE	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE	28	12
SEX	ONE-CHARACTER CODE - USE NODC CODE 0101	40	1
SEX MATURITY	ONE-CHARACTER CODE - USE NODC CODE 0091	41	1
CARAPACE WIDTH	XXXX (WHOLE MILLIMETERS)	42	4
SHELL CONDITION	ONE-CHARACTER CODE - USE NODC CODE 0132	46	1
WET WEIGHT OF INDIVIDUAL	XXXXXXX (GRAMS TO TENTHS)	47	7
WEIGHT DETERMINATION	ONE-CHARACTER CODE - NOTE DIFFERENT CODE THAN RECORDS 'F' AND 'H' - USE NODC CODE 0163	54	1
AGE OF INDIVIDUAL	XX - AGE IN YEARS	55	2
AGE METHOD (STRUCTURE)	ONE-CHARACTER CODE - USE NODC CODE 0090	57	1
AGE DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0170	58	1
SAMPLE TYPE	ONE-CHARACTER CODE - USE NODC CODE 0171	59	1
DATA TYPE	ONE-CHARACTER CODE - USE NODC CODE 0126	60	1
CHELAE LENGTH	XXX (WHOLE MILLIMETERS)	61	3
PETASMA/THELYCUM	ONE-CHARACTER CODE - USE NODC CODE 0345	64	1
GONAD OR OVARIAN WEIGHT	XXXXX (GRAMS TO HUNDREDTHS)	65	5
GONAD-SOMATIC INDEX	XXXX (EXPRESSED TO HUNDREDTHS) - RATIO OF GONAD TO WHOLE BODY WEIGHT	70	4
EGG COLOR	ONE-CHARACTER CODE - USE NODC CODE 0127	74	1
EGG CONDITION	ONE-CHARACTER CODE - USE NODC CODE 0128	75	1
CLUTCH SIZE	ONE-CHARACTER CODE - USE NODC CODE 0125	76	1
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

INDIVIDUAL PREDATOR RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'M' - THIS RECORD IS LINKED TO ONE OR MORE PREY RECORDS (RECORD 'N') THROUGH THE SPECIMEN NUMBER. THE RECORD CAN BE USED TO REPORT PREDATOR DATA FOR SPECIMENS THAT MAY NOT HAVE BEEN MEASURED OR IDENTIFIED IN OTHER DATA RECORDS BY USING UNIQUE SPECIMEN NUMBERS.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	SEE RECORD 'K'	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE TO IDENTIFY PREDATOR SPECIMEN	28	12
LIFE HISTORY	ONE-CHARACTER CODE TO IDENTIFY LIFE HISTORY OF PREDATOR - USE NODC CODE 0148	40	1
ORGAN CODE	ONE-CHARACTER CODE TO IDENTIFY ORGAN EXAMINED - USE NODC CODE 0173	41	1
GUT POSITION	ONE-CHARACTER CODE - USE NODC CODE 0174	42	1
STOMACH FULLNESS	ONE-CHARACTER CODE TO DESCRIBE FULLNESS OF STOMACH - USE NODC CODE 0092	43	1
STOMACH DIGESTION	ONE-CHARACTER CODE TO DESCRIBE AMOUNT OF CONTENTS THAT ARE IDENTIFIABLE - USE NODC CODE 0155	44	1
WET WEIGHT OF SPECIMEN STOMACH CONTENTS	XXXXX - WET WEIGHT FOR SPECIES IDENTIFIED IN TAXONOMIC CODE FIELD (GRAMS TO TENTHS)	45	5
WEIGHT DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0163	50	1
VOLUME OF TOTAL GUT CONTENTS	XXXX (MILLILITERS TO TENTHS)	51	4
BLANKS		55	22
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

PREY RECORD-INDIVIDUAL PREDATOR

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'N' - MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH PREDATOR SPECIMEN. THE PREY/PREY PART CODE MAY RESULT IN SEVERAL RECORDS FOR THE SAME SPECIES CODE.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	SEE RECORD 'K'	24	4
TAXONOMIC CODE	12-CHARACTER CODE - USE NODC TAXONOMIC CODE TO IDENTIFY PREY SAMPLE OR SAMPLES	28	12
LIFE HISTORY	ONE-CHARACTER CODE TO IDENTIFY PREDOMINATE LIFE HISTORY OF PREY SAMPLES - USE NODC CODE 0148	40	1
WET WEIGHT OF PREY SPECIMEN	XXXXX (GRAMS TO HUNDREDTHS)	41	5
WEIGHT METHOD	ONE-CHARACTER CODE - USE NODC CODE 0156	46	1
NUMBER OF PREY	XXXX - NUMBER OF INDIVIDUAL SPECIMEN PREY FOR THE SPECIES CODE INDICATED ABOVE	47	4
NUMBER DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0162	51	1
VOLUME OF PREY	XXXXX - VOLUME OF PREY INDIVIDUALS FOR THE SPECIES CODE INDICATED ABOVE - (MILLILITERS TO TENTHS)	52	5
PREY OR PREY PART	TWO-CHARACTER CODE TO IDENTIFY PORTION OF PREY SPECIMEN EXAMINED - MULTIPLE RECORDS FOR A SPECIES MAY RESULT IF SIGNIFICANTLY DIFFERENT PREY PARTS CAN BE DETERMINED AND SEPARATELY MEASURED - USE NODC CODE 0231	57	2
LENGTH OF PREY SIZE	XXXX - MILLIMETERS TO TENTHS	59	4
PERCENT OF PREY ITEMS	ONE-CHARACTER CODE - USE NODC CODE 0155	63	1
BLANKS		64	13
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

PREDATOR SUMMARY RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'P' - THIS RECORD CAN BE USED TO REPORT SUMMARY INFORMATION FOR EACH PREDATOR SPECIES	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
BLANKS	SAME AS RECORD 'G' NOTE	24	4
TAXONOMIC CODE	12-CHARACTER CODE TO IDENTIFY PREDATOR SPECIES - USE NODC TAXONOMIC CODE	28	12
NUMBER OF STOMACHS POOLED	XXX - NUMBER OF PREDATOR STOMACHS POOLED TO OBTAIN DATA ENTERED IN RECORD 'Q'	40	3
TOTAL WET WEIGHT	XXXXX - TOTAL WET WEIGHT FOR ALL STOMACH CONTENTS FOR EACH PREDATOR SPECIES (GRAMS TO TENTHS)	43	5
WEIGHT DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0163	48	1
BLANKS		49	28
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

PREY SUMMARY RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'Q' - THIS RECORD IS ASSOCIATED WITH RECORD 'P' FOR REPORTING SUMMARY DATA FOR EACH PREY SPECIES FOR ANY NUMBER OF STOMACHS POOLED, AS ENTERED IN RECORD 'P'	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
BLANKS	SAME AS RECORD 'G' NOTE	24	4
TAXONOMIC CODE	12-CHARACTER CODE TO IDENTIFY PREY SPECIES - USE NODC TAXONOMIC CODE	28	12
TOTAL WET WEIGHT	XXXXX - TOTAL WET WEIGHT OF PREY SAMPLE FOR EACH SPECIES (GRAMS TO TENTHS)	40	5
WEIGHT METHOD	ONE-CHARACTER CODE - USE NODC CODE 0156	45	1
TOTAL NUMBER	XXXXX - TOTAL NUMBER OF PREY ITEMS FOR EACH SPECIES IN THE SAMPLE	46	5
NUMBER DETERMINATION	ONE-CHARACTER CODE - USE NODC CODE 0162	51	1

TOTAL VOLUME	XXXXX - TOTAL VOLUME OF ALL PREY ITEMS FOR EACH SPECIES IN THE SAMPLE (WHOLE MILLILITERS)	52	5
PREY OR PREY PART	TWO-CHARACTER CODE TO IDENTIFY PORTION OF PREY SPECIMEN EXAMINED - MULTIPLE RECORDS FOR A SPECIES MAY RESULT IF SIGNIFICANTLY DIFFERENT PREY PARTS CAN BE DETERMINED AND SEPARATELY MEASURED - USE NODC CODE 0231	57	2
SMALL PREY WET WEIGHT	XXXXX - WET WEIGHTS FOR VERY SMALL POOLED PREY SAMPLES FOR EACH PREY SPECIES PARTICULARLY SHELLFISH (GRAMS TO HUNDREDTHS)	59	5
SMALL PREY VOLUME	XXX - VOLUME OF VERY SMALL POOLED PREY SPECIES FOR EACH PREY SPECIES, PARTICULARLY SHELLFISH (MILLILITERS TO TENTHS)	64	3
BLANKS		67	10
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

TEXT RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER.	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'T' - THE TEXT RECORD CAN BE USED FOR SPECIFIC HAULS, SAMPLES, ETC BY ENTERING THE NUMBERS IN THE RELATED FIELDS AND BY PROPER USE OF SEQUENCE NUMBERS WITHIN A STATION AND A FILE ID.	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	SEE RECORD 'K'	24	4
TEXT	49-CHARACTER FIELD FOR TEXT OR COMMENTS - MAY BE USED FOR INDIVIDUAL HAULS, SAMPLES OR SPECIMEN BY ENTERING THE NUMBER IN THE PROPER FIELDS - MAY BE LEFT BLANK FOR MORE GENERAL COMMENTS	28	49
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

GROWTH RECORD

NODC FILE NUMBER	ALWAYS '123'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'R' - THIS RECORD IS USED FOR GROWTH MEASUREMENTS FROM SCALE FOCUS TO YR ANNULUS	10	1
STATION NUMBER	SEE RECORD 'B'	11	6
HAUL NUMBER	SEE RECORD 'B'	17	3
SAMPLE NUMBER	SEE RECORD 'G'	20	4
SPECIMEN NUMBER	SEE RECORD 'K'	24	4
TAXONOMIC CODE	12-CHARACTER NODC TAXONOMIC CODE	28	12
GROWTH MESUREMENT	XXX - IST ANNULUS (MILLIMETERS TO TENTHS)	40	3
GROWTH MEASUREMENT	XXX - 2ND ANNULUS (MILLIMETERS TO TENTHS)	43	3
GROWTH MEASUREMENT	XXX - 3RD ANNULUS (MILLIMETERS TO TENTHS)	46	3
GROWTH MEASUREMENT	XXX - 4TH ANNULUS (MILLIMETERS TO TENTHS)	49	3
GROWTH MEASUREMENT	XXX - 5TH ANNULUS (MILLIMETERS TO TENTHS)	52	3
GROWTH MEASUREMENT	XXX - 6TH ANNULUS (MILLIMETERS TO TENTHS)	55	3
GROWTH MEASUREMENT	XXX - 7TH ANNULUS (MILLIMETERS TO TENTHS)	58	3
GROWTH MEASUREMENT	XXX - 8TH ANNULUS (MILLIMETERS TO TENTHS)	61	3
GROWTH MEASUREMENT	XXX - 9TH ANNULUS (MILLIMETERS TO TENTHS)	64	3
GROWTH MEASUREMENT	XXX - 10TH ANNULUS (MILLIMETERS TO TENTHS)	67	3
GROWTH MEASUREMENT	XXX - 11TH ANNULUS (MILLIMETERS TO TENTHS)	70	3
BLANKS		73	3
CONTINUATION	ONE-CHARACTER CODE - USE NODC CODE 0387	76	1
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0052	WIND FORCE (BEAUFORT)
0076	BOTTOM TRAWL GEAR
0077	BOTTOM TYPE
0078	GEAR MATERIAL
0079	AGENCY
0082	LENGTH
0090	AGE METHOD

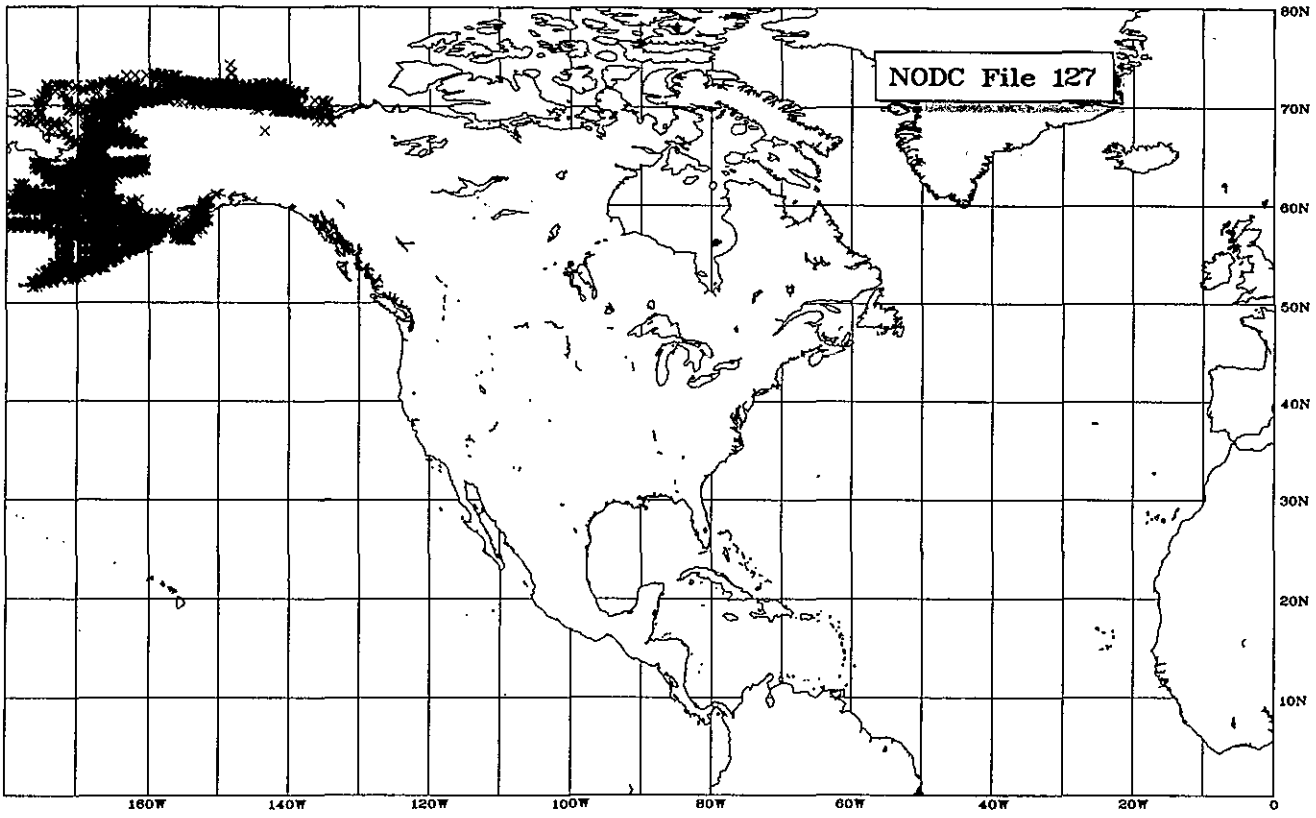
0091	SEX MATURITY
0092	STOMACH FULLNESS
0096	COMPASS DIRECTION
0101	SEX
0105	CLOUD AMOUNT (WMO 2700)
0108	WEATHER (WMO 4501)
0109	SEA STATE (WMO 3700)
0117	DECISION
0124	BOTTOM TRAWL GEAR ACCES.
0125	CLUTCH SIZE
1026	DATA TYPE
0127	EGG COLOR
0128	EGG CONDITION
0129	GEAR TYPE (123)
0130	MESH
0131	PERFORMANCE
0132	SHELL CONDITION
0133	VESSEL
0148	LIFE HISTORY
0154	TIDE STAGE
0155	STOMACH DIGESTION
0156	WEIGHT METHOD
0161	WEIGHT DETERMINATION
0162	NUMBER DETERMINATION
0163	SPECIMEN WEIGHT DETERMINATION
0165	SOUNDING RECORD
0167	BAIT/LURE
0169	LENGTH SAMPLE
0170	AGE DETERMINATION
0171	SAMPLE TYPE (123)
0172	FIN CLIP
0173	ORGAN
0174	GUT POSITION
0231	PREY/PREY PART
0324	DECISION II
0345	PETASMA/THELYCUM
0353	TYPE OF LURE
--	NODC TAXONOMIC CODE

4.1.26 Marine Animal Sighting and Census (F127)

Geographic area: Coastal Alaska and adjacent waters

Time period: 1979 - 1983

This file contains data from field observations of marine mammals. Data may be reported either for individual, random sightings or for sightings made as part of systematic ship or aircraft surveys along specified tracks. These data provide information on animal population densities and distributions, activities, migratory routes, and breeding locales. Cruise or survey information, start and end positions, start and end times, and platform speed, direction, and altitude are reported for each observation or series of observations. Position, date, and time are reported for each sighting location, along with a code indicating presence or absence of animals and, if present, their distance to the observer, shoreline, and ice edge, and heading direction. For each sighting location, animal sighting data are reported by species for all observed species. Species identification, total number of individuals, and counts by age group (adults, subjuveniles, juveniles, unknown) may be reported in summary for all animals sighted or by subgroups distinguished by sex, behavior, markings, or other characteristics. A text record is available for comments.



File Structure -

Seven 80-character records: (1) Cruise Header Record, (2) Transit Record, (3) Environment Record, (4) Location Record, (5) Summary Sighting Record, (6) Detail Sighting Record and, (7) Text Record

File Format -

Marine Animal Sighting and Census (File 127)

PARAMETER	DESCRIPTION	SC	EL
CRUISE HEADER RECORD			
NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'A' - SHOULD BE USED ONLY ONCE FOR EACH FILE ID - INFORMATION SHOULD AGREE WITH THAT IN THE DOCUMENTATION THAT ACCOMPANIES THE DATA	10	1
VESSEL/PLATFORM NAME	11-CHARACTER FIELD	11	11
CRUISE ID	SIX-CHARACTER FIELD ASSIGNED BY ORIGINATOR	22	6
START DATE OF SURVEY	YYMMDD	28	6
END DATE OF SURVEY	YYMMDD	34	6
INVESTIGATOR, SCIENTIST OR DATA SOURCE	15-CHARACTER FIELD IDENTIFYING DATA SOURCE	40	15
INSTITUTION OR AGENCY	15-CHARACTER FIELD IDENTIFYING ORGANIZATION	55	15
PLATFORM ID	THREE-DIGIT CODE - USE NODC CODE 0063 (SHIPS) OR NODC CODE 0217 (AIRCRAFT) - MAY BE USED INSTEAD OF PLATFORM NAME FIELD	70	3
PLATFORM TYPE	ONE-CHARACTER CODE - USE NODC CODE 0100	73	1
BLANKS		74	7
TRANSIT RECORD			
NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'B' - SHOULD BE USED TO DESCRIBE COMPLETE TRANSIT OR ANY PORTION OF TRANSIT OR SURVEY LEG TRAVELED ALONG A RELATIVELY STRAIGHT LINE. IF INCIDENTAL SIGHTINGS ARE MADE OUTSIDE OF THE DESCRIBED TRANSIT AREA, CARE SHOULD BE TAKEN TO CORRECT ELAPSED TIME FIELDS OR TRANSITS SHOULD BE DIVIDED INTO SEGMENTS AT THE POINTS OF DEPARTURE FROM THE TRANSIT PATH AND TIMES/DISTANCES DIVIDED UP APPROPRIATELY.	10	1
STATION NUMBER	FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - MAY REPRESENT A LEG OF A CRUISE OR A SIGHTING OF ONE OR MORE GROUPS AT THE SAME TIME AND PLACE - ALSO USED IN RECORD TYPES C THROUGH F AND T	11	5
BEGIN LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	16	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N'"OR 'S'	22	1
BEGIN LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	23	7
LONGITUDE HEMISPHERE	ONE-CHARCTER CODE - 'E' OR 'W'	30	1
END LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	31	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S'	37	1
END LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS)	38	7
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W'	45	1
BEGIN DATE (GMT)	YYMMDD	46	6
BEGIN TIME (GMT)	XXXX (HOURS AND MINUTES-24 HOUR CLOCK)	52	4
END TIME (GMT)	XXXX (HOURS AND MINUTES-24 HOUR CLOCK) - END TIME IS ASSUMED TO BE WITHIN THE SAME DAY. CONVERSION TO GMT MAY CAUSE A CHANGE IN DAYS AND AN APPARENT END TIME LESS THAN START TIME.	56	4
WIDTH OF TRACK	XXXX (KILOMETERS TO HUNDREDTHS)	60	4
PLATFORM DIRECTION	XXX (DEGREES TOWARD)	64	3
PLATFORM SPEED	XXX (WHOLE KNOTS) - ENTER FOR SHIP OR AIRCRAFT SPEEDS	67	3
PLATFORM ALTITUDE (OBSERVER HEIGHT)	XXXX (WHOLE METERS)	70	4

LEG MADE GOOD	ONE-CHARACTER CODE - USE NODC CODE 0117	74	1
COMPLETENESS	ONE-CHARACTER CODE - USE NODC CODE 0002	75	1
BLANK		76	1
SEQUENCE NUMBER	FOUR-DIGIT FIELD USED TO SORT RECORDS WITHIN A STATION AND A FILE ID - ALSO INCLUDED IN RECORDS 'C' THROUGH 'E' AND 'T'	77	4

ENVIRONMENT RECORD

NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'C' - TO BE REPORTED FOR EACH SIGHTING WHERE FEASIBLE AND ONLY ONE RECORD PER SIGHTING NUMBER	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SIGHTING NUMBER	XXXXX - A UNIQUE NUMBER WITHIN EACH STATION - IT IS SUGGESTED THAT SIGHTINGS BE NUMBERED SEQUENTIALLY WITHIN EACH DATA SET	16	5
WATER DEPTH	XXXX - (WHOLE METERS)	21	4
CURRENT DIRECTION	XXX - (DEGREES TOWARD)	25	3
CURRENT SPEED	XX - (WHOLE KNOTS)	28	2
WIND DIRECTION	XXX - (DEGREES FROM)	30	3
WIND SPEED	XX - (WHOLE KNOTS)	33	2
CLOUD TYPE	ONE-CHARACTER CODE - USE NODC CODE 0053	35	1
CLOUD AMOUNT	ONE-CHARACTER CODE - USE NODC CODE 0105	36	1
WEATHER	TWO-CHARACTER CODE - USE NODC CODE 0159	37	2
AIR TEMPERATURE	XXXX - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO THE VALUE (DEG C TO TENTHS)	39	4
SEA SURFACE TEMPERATURE	XXXX - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO THE VALUE (DEG C TO HUNDREDTHS)	43	4
SEA STATE	ONE-CHARACTER CODE - USE NODC CODE 0052 - USE BEAUFORT SCALE TO DESCRIBE SEA CONDITIONS - ONLY CODES 0-9 SHOULD BE APPROPRIATE FOR OBSERVATIONAL DATA	47	1
WATER COLOR	TWO-CHARACTER CODE - USE NODC CODE 0051	48	2
SURFACE VISIBILITY	ONE-CHARACTER CODE - USE NODC CODE 0006	50	1
GLARE AMOUNT	ONE-CHARACTER CODE - USE NODC CODE 0035	51	1
GLARE LOCATION	ONE-CHARACTER CODE - USE NODC CODE 0116	53	1
ICE TYPE	ONE-CHARACTER CODE - USE NODC CODE 0064	54	1
OCTAS OF THIN ICE	ONE-CHARACTER CODE - USE NODC CODE 0065	55	1
CHARACTERISTICS OF THIN ICE	ONE-CHARACTER CODE - USE NODC CODE 0066	56	1
OCTAS OF MODERATE ICE	ONE-CHARACTER CODE - USE NODC CODE 0065	57	1
CHARACTERISTICS OF MODERATE ICE	ONE-CHARACTER CODE - USE NODC CODE 0066	58	1
OCTAS OF HEAVY ICE	ONE-CHARACTER CODE - USE NODC CODE 0065	59	1
CHARACTERISTICS OF HEAVY ICE	ONE-CHARACTER CODE - USE NODC CODE 0066	60	1
ICE DEFORMATION	ONE-CHARACTER CODE - USE NODC CODE 0067	61	1
TRANSECT WIDTH (ICE)	ONE-CHARACTER CODE - USE NODC CODE 0068	62	1
PLATFORM ACTIVITY	TWO-CHARACTER CODE TO DESCRIBE SURVEY PLATFORM ACTIVITY - USE NODC CODE 0005	63	2
HUMAN ACTIVITY	TWO-CHARACTER CODE TO DESCRIBE THE PRINCIPAL ACTIVITY NEAR THE SIGHTING LOCATION - USE NODC CODE 0354	65	2
BLANKS		67	10
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

LOCATION RECORD

NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'D' - SHOULD BE USED TO INDICATE EACH SIGHTING POSITION - MULTIPLE RECORDS MAY BE USED FOR EACH STATION. SIGHTINGS MAY BE WITHIN A TRANSIT OR FOR INCIDENTAL RANDOM SIGHTINGS. FOR STUDIES WHERE SPECIFIC LOCATIONS ARE SEARCHED AND NO SPECIES SIGHTED, THE ANIMAL SIGHTED CODE SHOULD INDICATE THE ABSENSE OF ANIMALS. IT IS SUGGESTED THAT ALL SIGHTINGS AND SEARCHES BE NUMBERED SEQUENTIALLY WITHIN EACH STATION.	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SIGHTING NUMBER	SEE RECORD 'C' - NUMBERS SHOULD AGREE WITH ASSOCIATED ENVIRONMENT RECORDS	16	5
SIGHTING LATITUDE	DDMMSS (DEGREES, MINUTES, SECONDS)	21	6
LATITUDE HEMISPHERE	ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)	27	1
SIGHTING LONGITUDE	DDDMMSS (DEGREES, MINUTES, SECONDS) - IF ANIMAL IS	28	7

	SIGHTED AND POSITION IS SIGNIFICANTLY DIFFERENT FROM SHIP OR AIRCRAFT POSITION (GREATER THAN ONE MILE OR TWO KILOMETERS), ANIMAL POSITION RATHER THAN SHIP POSITION SHOULD BE REPORTED IF POSSIBLE		
LONGITUDE HEMISPHERE	ONE-CHARACTER CODE - 'E' OR 'W' (NODC CODE 0501)	35	1
SIGHTING DATE	YYMMDD	36	6
SIGHTING TIME	XXXX (HOURS AND MINUTES)	42	4
ANIMAL SIGHTED CODE	ONE-CHARACTER CODE - USE TO INDICATE IF ANIMALS WERE SIGHTED - IF YES, ONE OR MORE ANIMAL SIGHTING RECORDS SHOULD BE INCLUDED FOR THIS STATION AND SIGHTING NUMBER - USE NODC CODE 0117	46	1
DISTANCE OF ANIMAL(S) FROM PLATFORM	XXXX (WHOLE METERS)	47	4
BEARING TO ANIMAL(S)	XXX (WHOLE DEGREES TRUE)	51	3
DISTANCE OF ANIMAL(S) TO SHORE	XXXX (KILOMETERS TO TENTHS)	54	4
DISTANCE OF ANIMAL(S) TO ICE EDGE	XXXX (KILOMETERS TO TENTHS)	58	4
ANIMAL OR GROUP HEADING	XXX (WHOLE DEGREES TOWARD)	62	3
PLATFORM ALTITUDE	XXXX (WHOLE METERS) - THIS ENTRY SHOULD AGREE WITH TRANSIT VALUE IF TRANSIT RECORD IS USED	65	4
STATION IDENTIFIER	8-CHARACTER ORIGINATOR STATION IDENTIFIER	69	8
SEQUENCE NUMBER	SEE RECORD 'B'	77	4
SUMMARY SIGHTING RECORD			
NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'E' - THIS RECORD IS USED TO INDICATE THE TOTAL NUMBER OF ANIMALS SIGHTED AT EACH STATION REGARDLESS OF BEHAVIOR, SEX OR OTHER SUBGROUPS. THE SUM OF THE ADULTS, SUBADULTS AND UNKNOWN (IF REPORTED) SHOULD EQUAL THE TOTAL NUMBER OF INDIVIDUALS. THERE SHOULD BE ONE RECORD PER SPECIES SIGHTED AND SIGHTING NUMBERS SHOULD RELATE TO RECORD 'C' AND 'D' INFORMATION WITH THE SAME STATION AND SIGHTING NUMBERS.	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SIGHTING NUMBER	SEE RECORDS 'C' AND 'D'	16	5
TAXONOMIC CODE	12-CHARACTER CODE FOR EACH SIGHTED SPECIES - USE NODC TAXONOMIC CODE - EACH SPECIES SIGHTED SHOULD BE REPRESENTED BY A SINGLE RECORD 'E' FOR EACH SIGHTING	21	12
IDENTIFICATION RELIABILITY	ONE-CHARACTER CODE - USE NODC CODE 0141	33	1
TOTAL NUMBER OF INDIVIDUALS	XXXXX - TOTAL NUMBER OF A SPECIES FOR THE INDIVIDUAL SIGHTING	34	5
CONFIDENCE	ONE-CHARACTER CODE - USE NODC CODE 0003	39	1
COLLECTION METHOD	ONE-CHARACTER CODE - USE NODC CODE 0001	40	1
NUMBER OF ADULTS	XXXXX - NUMBER OF ADULTS AS PART OF THE TOTAL NUMBER OF INDIVIDUALS	41	5
NUMBER OF SUBADULTS	XXXX - NUMBER OF SUBADULTS OR IMMATURE - THOSE ANIMALS THAT HAVE NOT YET REACHED THE REPRODUCTIVE STAGE AND ARE PAST THE NURSING STAGE	46	4
NUMBER OF JUVENILES	XXXX - NUMBER OF PUPS, CALVES OR HATCHLINGS - THOSE ANIMALS THAT STILL REQUIRE NURSING	50	4
NUMBER OF UNKNOWN	XXXXX - THE NUMBER OF ANIMALS THAT CANNOT BE IDENTIFIED BY AGE GROUP	54	5
BLANKS		59	18
SEQUENCE NUMBER	SEE RECORD 'B'	77	4
DETAIL SIGHTING RECORD			
NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'F' - SHOULD HAVE AT LEAST ONE RECORD FOR EACH SPECIES SIGHTED - SIGHTING NUMBERS SHOULD BE THE SAME AS ASSOCIATED RECORDS 'D' AND 'E' (AND 'C' WHERE ENVIRONMENT DATA ARE AVAILABLE)	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SIGHTING NUMBER	SEE RECORDS 'C', 'D' AND 'E'	16	5
TAXONOMIC CODE	12-CHARACTER CODE FOR EACH SIGHTED SPECIES - USE NODC TAXONOMIC CODE - DIFFERENT RECORDS MUST BE USED IF MORE THAN ONE SPECIES IS SIGHTED AT A STATION OR INDIVIDUALS ARE SPECIFIED FOR SPECIAL MARKS, BEHAVIORS, ETC.	21	12
IDENTIFICATION RELIABILITY	ONE-CHARACTER CODE - USE NODC CODE 0141	33	1

NUMBER OF INDIVIDUALS	XXXXX - NUMBER FOR THE SIGHTINGS FOR EACH BEHAVIOR CHARACTERISTIC, SEX, ETC	34	5
CONFIDENCE	ONE-CHARACTER CODE - USE NODC CODE 0003	39	1
COLLECTION METHOD	ONE-CHARACTER CODE - USE NODC CODE 0001	40	1
PREDOMINANT BEHAVIOR OF ANIMAL OR GROUP	THE FOLLOWING BEHAVIOR CODES USED TO DESCRIBE UP TO THREE MOST PREDOMINANT BEHAVIORS DURING THE TIME AND POSITION OF SIGHTING - CODE FROM LEFT TO RIGHT IN THE ORDER OF DECREASING IMPORTANCE		
BEHAVIOR I	TWO-CHARACTER CODE - USE NODC CODE 0139	41	2
BEHAVIOR II	TWO-CHARACTER CODE - USE NODC CODE 0139	43	2
BEHAVIOR III	TWO-CHARACTER CODE - USE NODC CODE 0139	45	2
NUMBER OF GROUPS	XX - THE NUMBER OF DISCRETE SUBUNITS OF THE NUMBER OF EACH SPECIES SIGHTED, IF ANIMALS ARE DIVIDED INTO GROUPS. USE 01 IF NO DEFINITE DIVISION IS OBSERVED	47	2
GROUP SIZE	ONE-CHARACTER CODE - USE THE CODE TO FIT THE MODAL OR MOST COMMONLY OBSERVED GROUP SIZE IF FEASIBLE - USE NODC CODE 0356	49	1
NUMBER OF ADULTS	XXXXX - NUMBER OF ADULTS AS PART OF THE NUMBER OF INDIVIDUALS FOR THIS RECORD	50	5
NUMBER OF SUBADULTS	XXXX - SAME AS ABOVE FOR SUBADULTS OR IMMATURE - THOSE ANIMALS THAT HAVE NOT YET REACHED THE REPRODUCTIVE STAGE AND ARE PAST THE NURSING STAGE	55	4
NUMBER OF JUVENILES	XXXX - SAME AS ABOVE FOR PUPS, CALVES OR HATCHLINGS - THOSE INDIVIDUALS THAT STILL REQUIRE NURSING	59	4
NUMBER OF ADULT MALES	XXXX - SAME AS ABOVE FOR ADULT MALES	63	4
NUMBER OF ADULT FEMALES	XXXX - SAME AS ABOVE FOR ADULT FEMALES -	67	4
SPECIAL MARKS OR TAGS	ONE-CHARACTER CODE TO INDICATE THE TYPE OF TAGS OR MARKINGS - GENERALLY WOULD REFER TO INDIVIDUAL ANIMAL - FURTHER INFORMATION MAY BE INCLUDED IN TEXT RECORDS USE NODC CODE 0062	71	1
DECOMPOSITION	ONE-CHARACTER CODE - USE NODC CODE 0004	72	1
PHOTOS TAKEN	ONE-CHARACTER CODE - USE TEXT RECORDS FOR MORE DETAILED INFORMATION ON PHOTOS - USE NODC CODE 0117	73	
DIVE TIME	XX - TIME TO NEAREST WHOLE MINUTE - DATA SHOULD REFER TO THE INDIVIDUAL ANIMAL SPECIFIED IN THE TAXONOMIC CODE FIELD OF THIS DATA RECORD	74	2
BLANK		76	1
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

TEXT RECORD

NODC FILE NUMBER	ALWAYS '127'	1	3
NODC TRACK NUMBER	6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC	4	6
RECORD NUMBER	ALWAYS 'T' - THIS RECORD CAN BE USED FOR COMMENTS PERTAINING TO INDIVIDUAL SIGHTINGS OR FOR GENERAL COMMENTS BY LEAVING THE SIGHTING NUMBER BLANK AND PLACING THE TEXT RECORD OR RECORDS IN THE PROPER SEQUENCE WITHIN THE FILE ID	10	1
STATION NUMBER	SEE RECORD 'B'	11	5
SIGHTING NUMBER	SEE RECORD 'C' AND 'D'	16	5
TEXT	56-CHARACTER FIELD FOR COMMENTS - MULTIPLE RECORDS MAY BE USED	21	56
SEQUENCE NUMBER	SEE RECORD 'B'	77	4

NODC Code Tables Used with this Format -

CODE NUMBER	CODE NAME
0001	COLLECTION METHOD
0002	COMPLETENESS
0003	CONFIDENCE
0004	DECOMPOSITION STAGE
0005	PLATFORM ACTIVITY (MAMMALS)
0006	SURFACE VISIBILITY
0035	GLARE INTENSITY
0051	WATER COLOR
0052	WIND FORCE (BEAUFORT)
0053	CLOUD TYPE (WMO 500)
0062	STATIC TELEMETRY
0063	PLAFORM ID-SHIP
0064	ICE TYPE
0065	ICE COVERAGE

0066	ICE CHARACTERISTICS
0067	ICE DEFORMATION
0068	ICE TRANSECT WIDTH
0096	COMPASS DIRECTION
0100	PLATFORM TYPE
0105	CLOUD AMOUNT (WMO 2700)
0116	DEBRIS
0117	DECISION
0139	BEHAVIOR (027)
0141	IDENTIFICATION RELIABILITY
0159	WEATHER (WMO 4677)
0217	PLATFORM-AIRCRAFT
0354	HUMAN ACTIVITIES
0355	GLARE LOCATION
0356	GROUP SIZE
--	NODC TAXONOMIC CODE

4.2 NODC Data Sets

Data sets submitted to the NODC that are amenable to being processed, reformatted, and merged into NODC Master Data Files are also stored in their original form. In addition to these "standard" types of data, however, the NODC also receives and disseminates many individual, one-of-a-kind data sets. Typically, these data sets:

- are submitted and stored in originator's formats;
- receive no NODC quality control other than inspection to ensure that they are adequately described by accompanying documentation; and
- cannot be selectively retrieved and can be provided to users only as direct one-to-one copies of whole data tapes or disks.

Most of these data sets are data collected by short-term projects or data compilations subject to special editing, quality control, or analytic procedures. NODC accepts such data sets for storage and dissemination on a case-by-case basis.

The NODC announces the availability of newly-acquired data sets expected to be of wide interest to the marine community in the NODC Environmental Information Bulletin series. These fliers provide detailed descriptions of new data sets and other products and services and tell how to order them (see Section 16). Following is a listing of the physical/chemical (Section 4.2.1) and biological (Section 4.2.2) data sets announced by NODC in the Bulletin series.

4.2.1 Physical/Chemical Data Sets

1. Atlantic Remote Sensing Land/ Ocean Experiment. Time series coastal ocean wave and current data collected during the Atlantic Remote Sensing Land/Ocean Experiment (ARSLOE). ARSLOE was sponsored jointly by the Coastal Engineering Research Center (CERC) of the U.S. Army Corps of Engineers and the National Ocean Survey (now Service) of NOAA. Conducted from 6 October to 30 November 1980 in the area of Duck, N.C., near the CERC Field Research Facility. *75 observation-months; 20 tapes (19 at 6250 bpi).*

2. NOS Coastal Wave Data. Time series wave data collected by the Coastal Wave Program of NOAA's National Ocean Service (NOS). The data are from waveriders deployed off the northeastern coast of the United States. Both measured wave displacement values and non-directional wave energy spectrum data are reported. Data for locations along the U.S. East coast. *1979-1983. 51 observation-months; 7 tapes (6250 bpi).*

3. Gulf Offshore Weather Observing Network (GOWON). Time series meteorological and ocean wave data measured by instruments on offshore oil rigs in the Gulf of Mexico. The data were collected as part of a cooperative program between the NOAA National Weather Service and participating oil companies. Measured parameters may include: air temperature and pressure; wind direction, speed, and gust; significant wave height, maximum wave height, and wave period; and water level. Data for U.S. Gulf coast. *1981-1982. 324 observation-months; 1 tape.*

4. Southern Ocean Atlas Data. High-quality hydrographic data set prepared in conjunction with the *Southern Ocean Atlas* (Columbia University Press) compiled by A. Gordon and co-authors. Data for circumpolar area from 30°S to 80°S. *Atlas data set: 6,313 stations; 1 tape. Grid point data set: 9,231 records (one for each grid point); 1 tape.*

5. Nearshore Sediment Transport Study Torrey Pines Experiment. Data on surf zone dynamics from the NSTS Torrey Pines Experiment conducted at Torrey Pines Beach, San Diego, Calif., 4-24 November 1978, with a follow-on sand tracer experiment on 6 December 1978. *Approximately 16 million data points; 8 tapes (unformatted binary).*

6. Nearshore Sediment Transport Study Santa Barbara Experiment. Data on surf zone dynamics from the NSTS Santa Barbara Experiment conducted at Leadbetter Beach, Santa Barbara, Calif. A 14-month sediment trap study began in October 1979. The intensive experiment period lasted for 30 days from 27 January 1980 through 25 February 1980. *Approximately one billion words of data; 28 tapes (unformatted binary).*

7. Climatological Atlas Of the World Ocean Data. Data sets prepared by S. Levitus of the NOAA Geophysical Fluid Dynamics Laboratory in conjunction with the *Climatological Atlas of the World Ocean* (NOAA Professional Paper No, 13, December 1982). Synthesis of temperature, salinity, and oxygen data from NODC's Oceanographic Station and Bathythermograph Data Files:

a. Annual Analyses. Temperature, salinity, oxygen, and oxygen saturation on a one-degree grid. *2 tapes.*

b. Seasonal Analyses. Temperature and salinity on a one-degree grid. *4 tapes.*

c. Monthly Analyses. Temperature only on a one-degree grid. *3 tapes.*

d. Seasonal Five-Degree Square Statistics. Number of observations, means, and standard deviations for temperature, salinity, oxygen, oxygen saturation, potential density, and specific volume. *2 tapes.*

8. Worldwide Ocean Water Color/Water Transparency Data. Data set derived from the NODC Oceanographic Station Data File (see file description 4.1.1) and consisting of the Master Records (station header information) from all stations reporting either water color or water transparency (116,350 stations selected from the total of over 700,000 stations held in the file as of December 1985). Water color is recorded as two-digit codes on the Forel-Ule color scale; water transparency as Secchi disc depth in whole meters. *116,350 records; 1 tape.*

9. FGGE Operational Year Global Ocean Climate Data Base. This data set was compiled by NODC in its capacity as Responsible National Oceanographic Data Center for the FGGE Operational Year (RNODC/FOY). It includes submissions from 17 different countries. Although the formal FGGE Operational Year was from 1 December 1978 to 30 November 1979, the data set covers the extended FOY period from 1 September 1978 to 29 February 1980. *The data base contains: 10,413 oceanographic hydrocast (bottle) stations; 4,030 CTD/STD casts; 28,733 expendable bathythermograph (XBT) temperature profiles; and 294 months of time-series data from current meter moorings. 8 tapes (1600 bpi) in GF3 format; 4 tapes (6250 bpi) in NODC formats.*

10. GEOSAT Geophysical Data Records from the Exact Repeat Mission. Global ocean significant wave heights and other ocean data derived from altimetry observations taken during the Exact Repeat Mission (ERM) of the U.S. Navy Geodetic Satellite (GEOSAT). During the ERM, which lasted from November 8, 1986 to January 5, 1990, GEOSAT collected data along a ground track with a 17-day repeat cycle. GEOSAT Sensor Data Records (SDRs) were converted to Geophysical Data Records (GDRs) by a group within the NOAA National Ocean Service (NOS). Until its performance began to degrade toward the end of its lifespan, GEOSAT collected about 1.5 million data records each 34 days (two repeat cycles). *31 tapes (6250 bpi) each containing data from two 17-day repeat cycles.*

11. SEQUAL/FOCAL Data Sets. These data were collected during the major scientific programs SEQUAL and FOCAL. SEQUAL (Seasonal Response of the Equatorial Atlantic) and FOCAL (Programme Français Ocean et Climat dans l'Atlantique Equatorial) were two coordinated programs to study the dynamical response of the upper equatorial Atlantic Ocean to the seasonally varying surface winds. The field program was designed to provide synoptic observations of the upper 500 m of the Atlantic Ocean for at least one annual cycle. Instruments were deployed from February 1983 through September 1984, while quarterly hydrographic cruises were conducted from October 1982 through August 1984. XBT sections were taken from January 1980 to December 1985. In addition to hydrographic (Nansen cast and CTD) data and XBT data, the data sets include data from current meter moorings, surface drifters (some with attached thermistor chains), inverted echo sounders, pressure gauges, and wind recorders. *7 tapes (1 tape of SEQUAL/FOCAL XBT data, 4 tapes of the remaining SEQUAL data, and 2 tapes of FOCAL data).*

12. Ocean Chlorophyll and Nutrients Data Set. This data set was compiled in cooperation with NASA specifically to provide researchers with *in situ* data for comparison with remotely-sensed data collected by the Coastal Zone Color Scanner (CZCS). The CZCS instrument was a radiometer with visible and infrared spectral channels that was launched on the Nimbus-7 satellite in October 1978 and collected ocean color data during its 7 1/2-year lifespan. This data set covers the first 19 months of the CZCS operations period, November 1978 through May 1980. It contains 8,909 records from a total of 4,362 stations. Most of the data were selected from NODC's Marine Chemistry (File 004) and Primary Productivity 1 (File 029) Data Files. Small amounts of data from the Australian Institute of Marine Science (253 stations), Spanish cruise data (23 stations), and Colombian cruise data collected in coastal waters of the Dominican Republic (21 stations) are also included. *1 tape (6250 bpi); 5 DS/DD 5.25-inch floppy disks; or 1 DS/HD 5.25-inch floppy disk.*

13. GEOSAT Wind/Wave Data from the Geodetic Mission. From its launch in March 1985 through September 1986, the U.S. Navy GEOSAT was in an orbit with a non-repeating ground track, providing the densest coverage of any altimeter flown to date. Because of its military nature, the complete data set from the GEOSAT Geodetic Mission is classified and not available to the public. This data set is a condensed, unclassified version that gives only the radar cross-section, wind speed, and significant wave height for the full 18-month period (March 31, 1985 through September 30, 1986). The data are recorded as 26-byte records in binary format. *6 tapes (6250 bpi, with 3 months of data per tape; tape 1 = April, May, June 1985, etc.)*

14. GEOSAT Geodetic Mission Data for the Southern Ocean. This data set, declassified in 1990, consists of all GEOSAT Geodetic Mission (GM) data acquired over the Southern Ocean between 60°S and 72°S encircling Antarctica. The Geodetic Mission extended from April 1, 1985 to September 30, 1986. The GM data north of the Southern Ocean remain classified The data are the complete Geophysical Data Records like those available from the GEOSAT Exact Repeat Mission (see Data Set 10). *2 tapes (6250 bpi)*

15. Sea Level Data from the Pacific and Indian Oceans. Altough the NODC maintains Master Data Files of sea level data from which users may be provided with data selectively retrieved for specified stations (Sections 4.1.9, 4.1.10, and 4.1.11), sea level data is also available as several packaged data sets. The entire holdings of hourly, daily, and monthly data from both the Indian and Pacific Oceans (six files total) are available on a single high density magmetic tape. *1 tape (6250 bpi).* In addition, the daily data only is available on floppy disk.

16. GEOSAT Crossover Difference Data from the Geodetic Mission. This data set consists of crossover differences (sea level differences at ground track intersections) computed from the GEOSAT Geodetic Mission data. A group within the NOAA National Ocean Service working at the Johns Hopkins University Applied Physics Laboratory constructed this global set of approximately 50 million GEOSAT crossover differences. These data include not only the initial 18-month Geodetic Mission, but also the first year of the subsequent GEOSAT Exact Repeat Mission, enabling computation of continuous, 2.5-year sea level time series spanning the two missions. These data are contained on 36 high density, binary format tapes and are organized in 18 ocean regions (2 tapes per region). *36 tapes (6250 bpi)*

4.2.2 Biological Data Sets

1. Marine Bird Data Sets. Each of the following data sets are stored in a separate format, but all are held on a single magnetic tape. Most of these data were collected as part of the Alaskan Outer Continental Shelf Environmental Assessment Program (OCSEAP), which conducted numerous studies during the 1970s and 1980s related to the development of offshore oil resources in Alaskan waters. Data set 1.1.g derived from the Marine Ecosystems Analysis (MESA) Puget Sound Project. *1 tape.*

1.a Marine Bird Specimen and Feeding Studies. Data from laboratory examinations of marine bird specimens collected in the field and analysis of food sample contents to determine prey species and characteristics. Species identification, general biological condition (e.g., age, sex, color), weight, and body dimensions are reported for each specimen (multiple specimens may be collected at each sample site). If food samples are taken, food sample source and characteristics are reported. From food sample analysis, prey species are identified and for each such species further detailed data may be presented. Data for coastal Alaska. *1975-1980. 2,118 stations.*

1.b Marine Bird Sighting, Ship/Aircraft Census. Data from field observations of marine birds made along ship or aircraft survey tracks. Species data may include age, sex, color, plumage, number of individuals, direction of flight, behavior, and food source association. Any number of species may be reported within one observation time span. Data for coastal Alaska and adjacent North Pacific Ocean. *1974-1982. 32,916 stations.*

1.c Marine Bird Sighting, Land Census. Data from field observations of marine birds made along land survey tracks. The contents and structure of this file are similar to File 033, although transect distances of land surveys will normally be shorter than those of ship and aircraft surveys. Species data may include age, sex, color, plumage, number of individuals, flight direction, bahavior, and food source association. Any number of species may be reported within one observation time span. Data for coastal Alaska. *1975-1980. 7,994 stations.*

1.d Feeding Flock. Data from field observations of marine bird feeding flocks made during air or ship surveys. Data may include flock height and dimensions, number of species, number of individuals per species, distance to land, species and number of associated marine mammals, flock behavior, interaction with other species, and arrival/departure activities. Data for coastal Alaska. *1975-1976. 223 stations.*

1.e Migratory Sea Bird Watch. Data from field observations of migratory bird species made at fixed offshore positions. Species information may include age, sex, color, plumage, molt, behavior, number of individuals, and number of species. Data for coastal Alaska. *1977-1978. 12 stations.*

1.f Marine Bird Habitats. Data from field observations of marine bird species and their asssociated habitats. Species and habitat information may include number of species, number of individuals per species, age, sex, color, molt, behavior, physiographic features, substrate, cover, and distances to shore, barrier islands, or river deltas. Data for coastal Alaska. *1975-1978. 2,152 stations.*

1.g Marine Bird Surveys. Data from field observations (land surveys) of marine birds and the environment in which they were sighted. Species information includes numbers of individuals by age and sex. Information such as age, sex, location, condition, presence of oil, and cause of death may also be reported for individual specimens. Data for Puget Sound. *1978-1979. 3,357 stations.*

2. Marine Mammal Data Sets. These three data sets (on 1 tape) for areas of coastal Alaska and Puget Sound were collected during the Alaskan OCSEAP and MESA Puget Sound projects. Each data set is stored in a different format. *1 tape.*

2.a Marine Mammal Specimen. Data from examinations of marine mammal specimens. Data for each specimen may include weight and body dimensions, sex and reproductive status, age, primary cause of death, and analysis of stomach contents. Data for coastal Alaska. *1975-1981. 4,467 stations.*

2.b Marine Mammal Sighting 2. Data from field observations of marine mammals obtained from ship or aircraft surveys. Parameters reported may include total number of individuals, number of pups, number of groups, and number of mammals per group. Note: In this file the geographic position of each group sighted is not recorded; in data set 2.2.c positions of group sightings are recorded as well as the beginning and end positions of each station or segment of survey track. *1976. 512 stations.*

2.c Marine Mammal Sighting 1. Data from field observations of marine mammals obtained from ship or aircraft surveys. Parameters reported may include group size; total number of individuals, adults (males and females), subadults, and pups; and mammal activity Note: Unlike data set 2.2.b this data set permits recording of sighting positions within each station or segment of survey track. *1971-1979. 4,012 stations.*

3. Pathology Data Sets. The following three data sets (on 1 tape) derive from studies of pathological conditions of marine organisms conducted during the OCSEAP and MESA projects. Each is in a different format. *1 tape.*

3.a Fin Rot. Data from examinations of the biological condition of diseased fishes. For tow samples collected, data include: total number of individuals of a given species, number of diseased fish of that species, and extent of damage to the body and various fins for up to three selected diseased individuals. Data for U.S. East coast. *1973-1975. 1,427 stations.*

3.b Fish Pathology. Data from examinations of diseased fishes. Although these data may be from field observations, they derive primarily from laboratory analyses. Data include catch statistics (e.g., total weight, number of individuals, age group, identity of diseases, and number of diseased individuals) by species for any number of species; and biological condition of selected specimens. The size, affected organ, location, and frequency of lesions may be reported for individual specimens. Data for coastal Alaska. *1975-1980. 948 stations.*

3.c Marine Invertebrate Pathology. Data from examinations of diseased marine invertebrates. Although these data may be from field observations, they derive primarily from laboratory analyses. Data include: catch statistics (e.g., total weight, number of individuals, identity of diseases, and number of diseased individuals) by species for any number of species; and biological condition of selected specimens. The size, location, and frequency of lesions may

be reported for individual specimens. Data for coastal Alaska and U.S. Gulf coast. *1976-1978. 325 stations.*

4. Marine Microbiology Data Sets. These two data sets (on 1 tape) derive from studies of bacteria and other microbiota in the marine environment. Each data set is in a different format. *1 tape.*

4.a Marine Bacteria. Data from bacteriological studies of the water column and ocean bottom. Data include the density (number per unit volume, weight, or area of sample) of heterotrophic, hydrocarbonoclastic, or halophilic bacteria in water or sediment samples. Data for U.S. Gulf coast. *1975-1979. 653 stations.*

4.b Microbiological Degradation. Data from laboratory analyses of bacteria, fungi, and other microbiota from samples collected in the marine environment. Sample data include laboratory techniques, sample treatment methods, incubation time and temperature, results of chemical analyses, and identity and density of microorganisms. Data for New York Bight and Puget Sound. *1977-1979. 325 stations.*

5. Seabed Oxygen Consumption. Data from analyses of seabed oxygen consumption determined from measurements (over a specified time interval) of initial and final dissolved oxygen concentration. Elapsed time, initial dissolved oxygen concentration, final dissolved oxygen concentration, oxygen consumption, and weight percent organic matter are reported for each replicate. Data on water column respiration (e.g., oxygen concentration, oxygen consumed or produced) may also be reported. Data for New York Bight. *1974-1978. 574 stations; 1 tape.*

6. Herring Surveys. Data from aircraft surveys of herring schools. Census data include species identification, school position and activity, school size index, and number of schools sighted. Data for coastal Alaska. *1976-1977. 457 stations; 1 tape.*

5.0 DATA INVENTORIES

NODC customers usually have certain specific requirements. They may need data for a certain geographic area and time period or they may need data from one or more specific cruises. The NODC has several ways of searching its systems for data inventory information to answer user inquiries. The principal information system that the NODC uses to provide data inventory information to users is called the NODC Data Inventory Database (DINDB). The DINDB is maintained, updated, and queried using the System 2000 database management system. Searches of the data tracking module within this system can answer the question of whether or not the NODC holds a certain data set. Searches of the archive inventory data base enable the NODC to determine information about the geographic and chronological distribution of data. The basic selection criteria that can be used to search for data in NODC's master data files and other data holdings are listed in Table 5.0-1.

NODC services personnel can provide results of simple inventory searches for users over the telephone. For example, a user might only need to know that a certain cruise is available or the total number of observations available in a specified area. If needed, however, various hard-copy data summaries and graphic plots can be generated and sent to users to provide them with more detailed inventory information. Data inventory information can be provided in two basic forms: data inventory listings that provide information in tabular form or map plots that depict geographic distribution of data as station.

The data inventories described in the following pages of this section are usually not requested as final products, but are provided to help users in formulating data requests. Some specialized types of data inventory reports that are useful for providing detailed information about data in NODC's Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files are described in Section 6.1.

Table 5-1 NODC Data Inventory Search Criteria

Data type - specified by identifying particular parameter or NODC data file.

Geographic area - specified by latitude/longitude or by WMO ten-degree/one-degree square numbers (see Section 15.1, Appendix A).

Time period - specified by ranges of dates (Year/Month/Day).

Cruise - specified by either NODC Reference Number (if known) or by originator's cruise number; if cruise number not known, data can be searched for using ship name and time period.

Ship (Platform) - specified by name (coded in data using NODC Ship Codes).

Country - specified by name (coded in data by NODC Country Codes, first two digits of NODC Reference Number).

Institution - specified by name (coded in data using NODC Institution Codes).

Required depth - depth (in meters) that observation must exceed.

Effective depth - depth (in meters) to which sound velocity is computed, i.e., depth to which both valid temperature and salinity are recorded (applicable to oceanographic station data only).

Taxonomy - specified (for marine biological data files) by identifying organisms of interest (Note: Searches can be conducted only to family level, coded by first six digits of the NODC Taxonomic Code).

Parameter - capability to search for specific data parameters is available in only two files: Oceanographic Station Data File (Dissolved oxygen, phosphate, total phosphorus, silicate, nitrate, nitrite, and pH) and the Marine Toxic Substances and Pollutants File (which includes data on over 120 chemical substances).

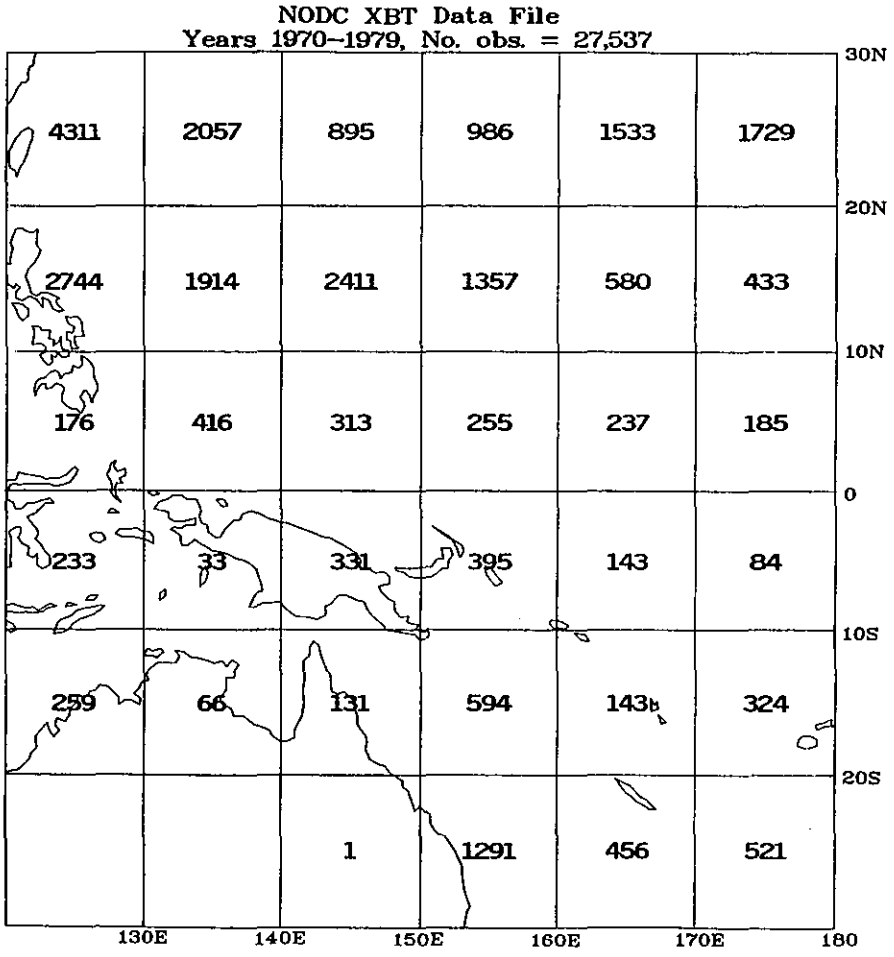
5.1 Cruise Summary

```
*  REFERENCE    INST    PLAT    CRUISE   DATE          LAT      LON     DEPTH
***
*  313188       3101    316N    235      02/14/1983    -701     2759    5055
*  313188       3101    316N    235      02/13/1983    -600     2758    5605
*  313188       3101    316N    235      02/10/1983       0     2800    3914
*  313188       3101    316N    235      02/15/1983    -808     2959    4975
*  313188       3101    316N    235      02/15/1983    -802     2900    5497
*  313188       3101    316N    235      02/14/1983    -755     2759    5588
*  313188       3101    316N    235      02/10/1983     -30     2759    4000
*  313188       3101    316N    235      02/12/1983    -500     2800    5066
*  313188       3101    316N    235      02/12/1983    -358     2801    5081
*  313188       3101    316N    235      02/11/1983    -300     2800    5075
*  313188       3101    316N    235      02/11/1983    -159     2759    5041
*  313188       3101    316N    235      02/10/1983    -100     2758    3754
*  358402       3548    35MF             06/07/1983     -30     2705    4944
*  358402       3548    35MF             06/07/1983      -1     2824    4837
*  358402       3548    35MF             06/08/1983    -130     2941    4769
---
>
```

Description -

This data inventory presentation is a listing of cruise information for each observation (station) that meets specified selection criteria. Each line of the printout is a summary of information for one observation and can be tailored to user specifications. Information that may be presented includes: NODC Reference Number, institution code, platform code, originator's cruise number, station date, WMO ten-degree and one-degree square numbers, and station depth. The output is quite flexible, however, and any of the searchable fields may be listed. The sample shown gives information on stations in WMO square 5002 (0° - 10°S, 20° - 30°W) for the year 1983.

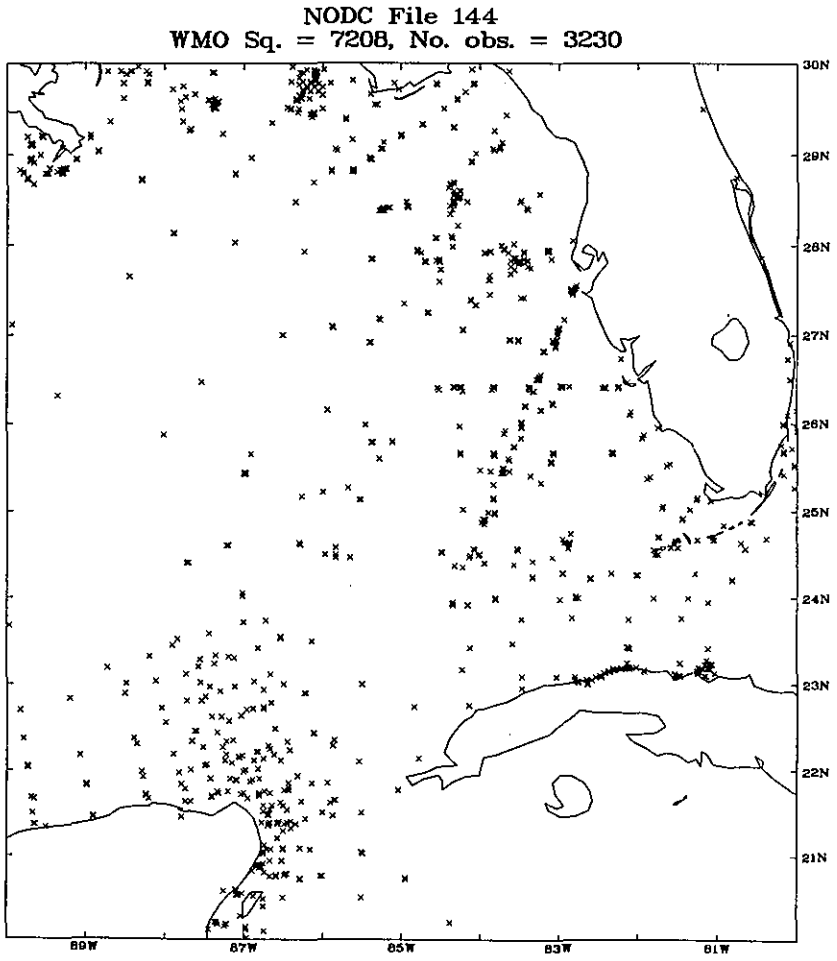
5.2 Ten-degree Square Counts



Description -

This data inventory is a gridded map showing counts of observations meeting specified selection criteria by ten-degree squares. The sample shown gives counts of XBT observations in an area of the western tropical Pacific Ocean for the years 1970-1979.

5.3 Station Location Plot



Description -

This data inventory is a graphic plot in which the locations of observations meeting specified selection criteria are marked by a symbol such as an "x" (several other choices available). Options include: choice of projection (e.g., Mercator, Robinson), inclusion of political (country) boundaries, and wording of printed title or heading information. The sample shows the locations of stations in the NODC Marine Toxic Substances and Pollutants Data File (File 144) in the eastern Gulf of Mexico.

6.0 DATA PRODUCTS

Data in NODC data files can be provided to users in a variety of forms from simple copies of data records to complex computer-generated data summaries, statistical analyses, and graphic plots. NODC data products are generated using a mix of in-house and commercial software packages. NODC's applications software is designed for maximum flexibility. Therefore, although some products are specific to data from a certain data file, many others are generic and may be produced for a variety of parameters from several different data files. For example, Vertical Array Summaries (Section 6.3.1) may be generated for 10 different parameters from one or more of four data files. It should also be noted that when data in separate data files are stored in a common format (e.g., MBT and XBT data), the user has the option of requesting products from a merged data set that includes data from more than one file.

Standard Data Media

NODC data products, which are described in detail in the following pages of this section, are often available in several different output media. NODC's standard output media characteristics are as follows:

1. **Magnetic tape.** 9-track, 1600 BPI, ANSI/ASCII (*user should specify if other tape characteristics are desired*).

2. **Magnetic diskette.** 5.25-inch and 3.5-inch MS-DOS compatible (*user should specify diskette characteristics desired*).

3. **Computer listing.** Standard-sized paper printout or 35 mm microfilm.

4. **Computer plots.** Hard copy paper plots or 35 mm microfilm.

Electronic Data Transfer

Users with access to computer networks may also be able to obtain small NODC data files (including some NODC data products) electronically. Please note that this service is not available for all NODC data products and that the NODC does not recommend electronic transfer for large data volumes.

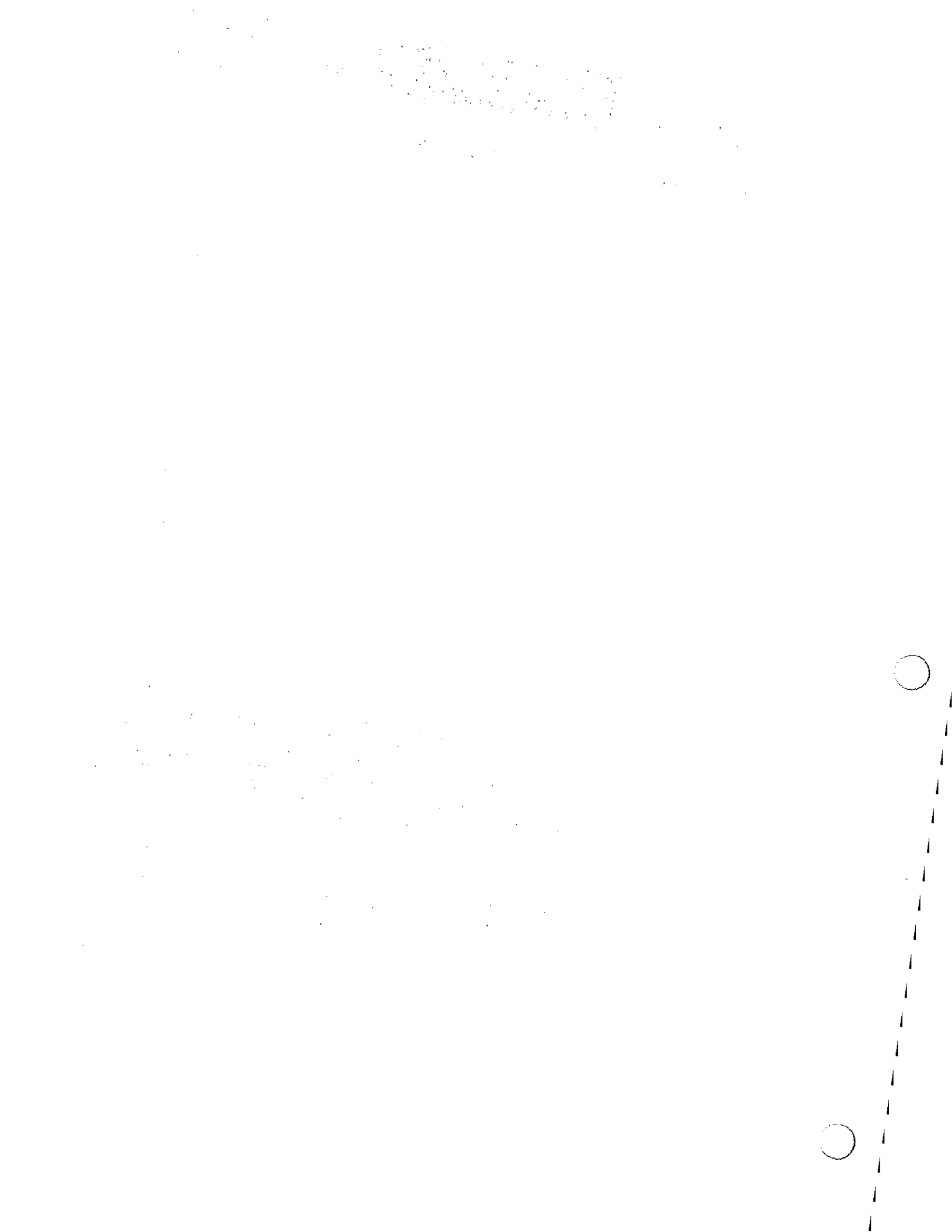
The NODC is a node on both the NSI-DECnet (formerly SPAN) and the NSFnet (Internet). The NODC is connected to the NSI-DECnet at 9600 baud, which means that transmitting a 100 megabyte file via this network could take 28.5 hours or more. Our connection to the NSFnet is at 56 kilobaud. In this case transmitting a 100 megabyte file could still take 5 hours or more. Therefore, if you need large volumes of data, networking is probably not for you. If you have access to either of these networks and need only small amounts of data--especially small amounts of data on a regular basis--then computer networking may be an option to consider. For further information or to make the necessary arrangements, please contact the NODC.

Data Product Costs

The cost of NODC data products is based on charges that include materials and computer time (Section 3.3). Although costs for data products tailored to user specifications can be determined only after the job is run, cost estimates can be provided beforehand.

6.1 Data Inventory Products

The data inventory products described in this section are more specialized than the general types of data inventories generated using the NODC Data Inventory Data Base (Section 5). The data inventories described here are most often used to support studies of historical data collection and coverage, rather than as an intermediate step to help define a data selection. These inventories provide detailed inventory information for a large volume of data or a large geographic area from NODC's Oceanographic Station Data, Low-resolution CTD/STD, and Bathythermograph Data Files.



6.1.1 Oceanographic Station Data Cruise-Consecutive Inventory

NODC STATION DATA CRUISE CONSECUTIVE INVENTORY

CRUISE	CONSECUTIVE	NUMBERS	D U C	STATIONS	SHIP CODE MULTIPLE SHIPS(*)	STARTING---ENDING DATES
0650186	0030	0030	2	1	AO	710626---710626
0650188	0031	0038	2	8	DA	740219---740220
0650189	0001	0001	2	1	WH	730709---730709
0650197	0071	0071	2	1	DA	731209---731209
0650201	0087	0089	2	3	WH	740511---740512
0650231	0202	0203	2	2	AO	700908---700908
0650240	0073	0073	2	1	DA	770205---770205
0650243	0001	0007	2			
0650243	0011	0011	2			
0650243	0013	0023	2			
0650243	0026	0028	2			
0650243	0031	0035	2	27	WH	770514---770610
1850111	0010	0012	2	3	NL	660819---660821
2650037	0009	0037	2	29	DA	670409---670423
2650087	0165	0165	2			
2650087	0176	0177	2	3	DA	720918---720921
3252398	0011	0044	3			
3252398	0096	0101	3	40	PB	680530---680715
3252629	0005	0006	3	2	PB	680918---680919
4650036	0063	0063	2			
4650036	0069	0071	2			
4650036	0135	0135	2			
4650036	0141	0143	2	8	AE	650520---650618

Description -

This product is a tabular listing of cruise information for selected data. Each line of the listing presents information on one cruise or cruise segment including: NODC reference number (country code plus NODC cruise number), consecutive station numbers, platform (ship) code, and cruise start and end dates. The sample shown is an excerpt from a Station Data Cruise-Consecutive Inventory for data from the Oceanographic Station Data File in WMO ten-degree square 7600 (60°-70°N, 0°-10°W) for years 1965-1980 only.

Specifications/Options -

This product is available for data in both the Oceanographic Station Data File and Low-resolution CTD/STD Data File. The requester must specify data selection either by geographic area and time period or by specific cruises.

6.1.2 Bathythermograph Data Cruise Inventory

COUNTRY	CRUISE	SHIP	START	END	NO. OF STA.
49	01332	4953RY	730629	730630	4
49	40163	4953KF	770219	770219	2
49	40164	4953KF	770428	770428	3
49	40165	4953KF	770929	771018	82
49	40167	4953KF	801003	801020	43
49	40168	4953ME	800707	800719	50
49	40169	4953ME	810119	810120	10
49	40172	4953ZD	801106	801107	13
49	40174	4953OJ	801125	801125	3
49	40175	4953RY	740607	740724	166
49	40176	4953RY	740911	740911	9
49	40177	4953RY	741004	741021	28
49	40178	4953RY	741130	741130	3
49	40179	4953RY	750114	750130	52

Description -

This product is a tabular listing of cruise information for selected bathythermograph data. Each line of the listing summarizes information on one cruise and presents: (1) country code, (2) NODC cruise number, (3) platform code (two characters each for country, institution, and ship), (4) start date, (5) end date, and (6) number of observations (from that cruise and that meet the data selection criteria). The sample shown is an excerpt from a BT Data Cruise Inventory for some data from Japan (country code 49).

Specifications/Options -

This product can be produced for data in the Mechanical Bathythermograph (MBT), Expendable Bathythermograph (XBT), Selected Level Bathythermograph (SBT), or Radio Message Bathythermograph (IBT) Data Files. The requester must specify data selection by geographic area and time period, specific cruises, or other criteria.

6.1.3 Oceanographic Station Data Parameter Inventory

OCEANOGRAPHIC STATION DATA PARAMETER INVENTORY

LOCATION	DATE	REFERENCE NO.	POSITION	DEPTH - SPACING	PARAMETERS SAMPLED

WMO SQ	5 SQ	2 SQ	1 SQ	MO	DY	YR	NODC CRUISE	CS	SHIP CD	LAT DEG	MIN	LONG DEG	MIN	SON DPH	MAX DPH	EFF DPH	MIN DPH	DIFF DPH	NO OBS	VI IN	S	O	P	T	S	N	N	P	C	T	R	A	D P	RC ID	S Q	OA
7601	1	02	03	03	26	1963	06 50057	0022	AD	60	54. N	013	20. W	01680	1550	1550	0188	0130	009	22	8	-	-	-	-	-	-	-	-	-	-	1	19		10
7601	1	02	03	05	30	1955	06 50846	0851	99	60	30. N	013	00. W	00760	0670	0670	0000	0090	011	07	9	9	9	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	05	07	1974	06 50201	0081	NH	60	44. N	013	01. W	01205	1165	1165	0000	0040	012	11	9	-	-	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	06	29	1938	26 50031	0049	99	60	19. N	013	48. W	01150	1084	1084	0000	0066	013	09	9	-	-	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	06	29	1938	26 50031	0050	99	60	21. N	013	09. W	00500	0475	0475	0000	0025	012	04	9	-	-	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	07	18	1954	74 50824	1632	SC	60	56. N	013	28. W	01610	1555	1555	0000	0055	018	09	9	6	6	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	09	22	1950	74 50535	1060	99	60	45. N	013	18. W	01445	1400	1400	0000	0045	015	10	9	6	6	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	10	15	1955	06 50846	0852	99	60	18. N	013	21. W	00495	0484	0484	0000	0011	010	05	9	-	-	-	-	-	-	-	-	-	-	-	2	19		10
7601	1	02	03	10	11	1960	31 50716	0013	CI	60	54. N	013	06. W	01673	1661	1661	0001	0012	025	07	9	9	-	-	-	-	-	-	-	-	-	-	3	19		10
7601	1	02	03	12	06	1969	90 50287	0100	ZB	60	13. N	013	08. W	00440	0356	0356	0000	0084	011	03	9	9	9	-	-	-	-	9	-	-	-	-	1	19		10
7601	1	02	03	12	07	1969	90 50287	0101	ZB	60	36. N	013	50. W	01700	0948	0948	0000	0752	018	06	9	-	-	-	-	-	-	-	-	-	-	-	1	19		10

11 STATIONS IN ONE SQ 03

11 STATIONS IN WMO SQ 7601

Description -

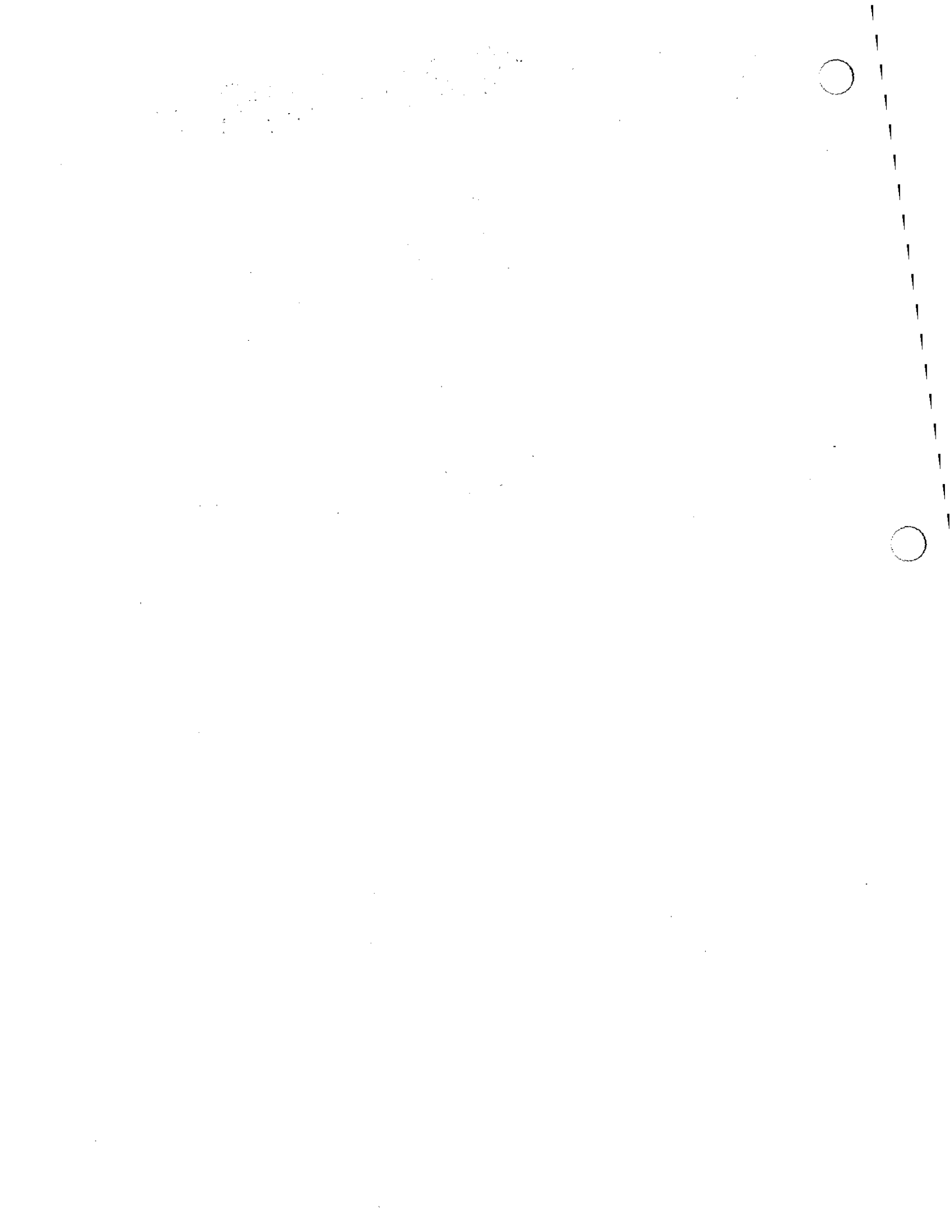
This product is a summary printout that gives information about data in the Oceanographic Station and Low-resolution CTD/STD Data Files. Each line of the printout summarizes information on one station meeting user-specified selection criteria and includes: location (WMO square numbers), date, NODC cruise number, consecutive station number, platform (ship) code, position (latitude-longitude), maximum sampling depth, number of depth levels sampled, and codes indicating which parameters were measured at the station. For example, a numerical code is used to indicate whether measurements of specific chemical parameters were reported. The code indicates the percentage of depths for which the parameter was reported: code 9 indicates the parameter was measured at 90 to 100 percent of the total number of valid depth levels, code 8 indicates 80 to 90 percent, and so on. A dash signifies that the parameter was not reported at any depth levels. The sample shown is a Parameter Inventory for oceanographic station data in a one-degree square near Iceland.

Specifications/Options -

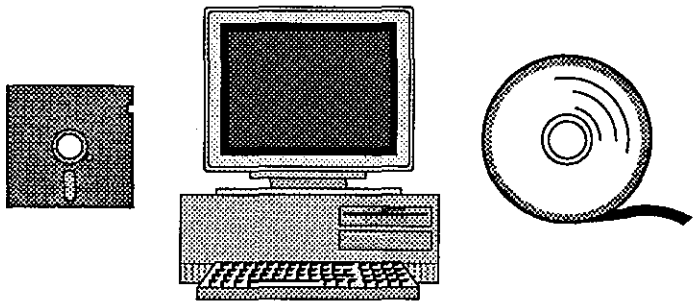
This product is available for data in the Oceanographic Station Data File and the Low-resolution CTD/STD Data File. The user should specify data selection criteria.

6.2 Data Selection and Retrieval Products

The data products described in this section provide the user with actual data retrieved from NODC's Master Data Files (Section 4.1). The simplest products of this type are selected data records provided in the file storage format. For certain files data may also be available as formatted printouts or in other formats.



6.2.1 File Format Data Records



DIGITAL OUTPUT ONLY

Description -

This product is a copy of data selected from one of NODC's Master Data Files (Section 4.1). The data are provided in the same format in which they are stored.

Specifications/Options -

This product is available for all NODC data files; for some files it is the only data product available. The user should specify:

(1) NODC data file of interest,

(2) data selection criteria, and

(3) output medium characteristics (tape or diskette) or electronic data transfer (for small data sets).

6.2.2 Oceanographic Station Data Listing

N O D C S T A T I O N D A T A
A R C H I V E L I S T I N G

```
REFID  31  1477      YEAR 1953      BOTDP 03566      AIR TEMP              DIR HGT PER      WIND-DIR 36      INST NANSEN CAST      TEN SQ 1313
CONSEC    0103      MONTH  10      SHIP SB          WET BULB                               WIND-SPD         TRACE DIR             5 SQUARE  2
LAT    31 44.5N      DAY   24      DATA USE 1       BAROMETR              SEA 4            WIND-FOR 04      DURATION              2 SQUARE 08
LONG  138 00  E      HOUR 19.7      AREA 07          CLOUD T/A             CL/TR            WEATHER X2       ORIG T-O 096          1 SQUARE 18
  CASTNUM/TIME  LVLTYP   DEPTH      TEMP      SAL      SIGMA-T   DYNDPTH   SND VEL   OXYG      PO4    TOT P    NO2    NO3    SIO3    PH

              STD     00000     23.48    33.74    22.86    00.000    1529.7    04.68
 /19.7        OBS     00000     23.48    33.74    22.86              1529.7    04.68    0.22                                  003.
 /19.7        OBS     00009     23.48    33.74    22.86              1529.9    04.71    0.22                                  004.
              STD     00010     23.48    33.74    22.86    00.050    1529.9    04.71
              STD     00020     23.51    33.76    22.87    00.100    1530.2    04.70
 /19.7        OBS     00023     23.52    33.76    22.87              1530.2    04.70    0.25                                  004.
              STD     00030     23.55    33.81    22.90    00.150    1530.5    04.68
 /19.7        OBS     00045     23.60    33.93    22.97              1531.0    04.63    0.28                                  004.
              STD     00050     23.42    33.95    23.04    00.249    1530.6    04.60
 /19.7        OBS     00066     22.84    34.14    23.35              1529.7    04.52    0.34                                  005.
              STD     00075     21.02    34.39    24.04    00.358    1525.4    04.26
 /19.7        OBS     00085     19.35    34.60    24.65              1521.3    04.03    0.66                                  008.
              STD     00100     18.23    34.62    24.95    00.445    1518.4    03.97
              STD     00125     16.49    34.67    25.40    00.516    1513.6    03.88
 /19.7        OBS     00128     16.29    34.67    25.45              1513.1    03.87    0.96                                  015.
              STD     00150     14.84    34.60    25.71    00.578    1508.8    03.79
 /19.7        OBS     00164     14.06    34.56    25.85              1506.5    03.74    1.18                                  022.
 /19.7        OBS     00199     12.57    34.51    26.12              1502.1    03.64    1.37                                  029.
              STD     00200     12.53    34.51    26.12    00.685    1501.9    03.63
 /19.7        OBS     00232     11.36    34.42    26.28              1498.3    03.43    1.59                                  035.
              STD     00250     10.51    34.38    26.40    00.776    1495.5    03.31
              STD     00300     08.65    34.31    26.66    00.855    1489.4    02.99
 /19.7        OBS     00304     08.53    34.31    26.67              1489.0    02.97    2.06                                  055.
 /19.7        OBS     00375     07.20    34.29    26.85              1485.0    02.55    2.32                                  070.
              STD     00400     06.76    34.28    26.91    00.988    1483.7    02.40
 /19.7        OBS     00451     05.98    34.28    27.01              1481.4    02.16    2.67                                  084.
              STD     00500     05.55    34.30    27.07    01.101    1480.5    02.06
              STD     00600     04.51    34.33    27.22    01.200    1478.0    01.89
 /21.8        OBS     00601     04.50    34.33    27.22              1477.9    01.89    2.97                                  069.
 /19.7        OBS     00613     04.36    34.35    27.25              1477.6    01.59    2.960                                 112.
              STD     00700     03.98    34.40    27.33    01.287    1477.5    01.78
 /21.8        OBS     00765     03.70    34.42    27.38              1477.4    01.68    3.04                                  128.
              STD     00800     03.54    34.43    27.40    01.365    1477.3    01.59
 /21.8        OBS     00851     03.35    34.44    27.43              1477.4    01.50    3.08                                  136.
              STD     00900     03.24    34.46    27.45    01.438    1477.8    01.52
              STD     01000     03.03    34.50    27.51    01.506    1478.6    01.56
```

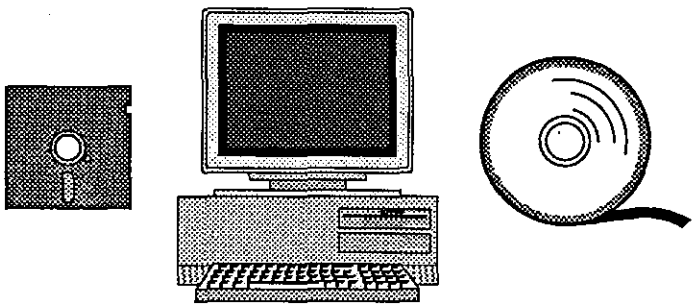
Description -

This product is a formatted printout of selected oceanographic station data. For each station the printout includes the master (header) information (e.g., NODC reference number, date, position, ship code) as well as measured and computed parameter values at observed depth levels and interpolated values at NODC standard depths. Each listing includes a complete explanation of all printout fields. The sample shown is one station taken during a 1953 cruise of the *S.F. Baird*.

Specifications/Options -

This product is available for data in both the Oceanographic Station Data File and Low-resolution CTD/STD Data File. The user must specify data selection criteria.

6.2.3 Oceanographic Station Data Fixed-Length Records



DIGITAL OUTPUT ONLY

Description -

This product is selected oceanographic station data in a fixed-length record format of 80, 83, or 120 bytes. These three formats are variations of NODC's original Oceanographic Station Data File format, which is now referred to as Station Data 1 (the current variable-length record format is called Station Data 2). The Station Data 1 format originated as the NODC storage format for these data when the file was held on punched cards. The 80- and 83-byte records include overpunches; the overpunches are eliminated in the 120-byte version of this format. Although primarily of interest to users with older computer programs developed to operate with the SD1 formatted data, this product also provides a convenient format in which to review or scan data on a PC.

Specifications/Options -

This product is available for data in the Oceanographic Station and Low-resolution CTD/STD Data Files. The user must specify data selection criteria, indicate which of the three record-length options is desired, and specify output media characteristics or, for small data sets, electronic data transfer.

6.2.4 Bathythermograph Data Listing

WMO - SQUARES: GD 10D 5D 2D 1D = 7 208 4 68 78

DATE: YR MO DA = 65 12 04

TIME: HR MN PRE = 01 00 1

N.O.O.C. REFERENCE IDENTIFICATION: CTY CRUISE CONS INST SHIP = 31 06906 0177 24 31240S

LATITUDE: DEG MN.T H PRE = 27 29 N 1

LONGITUDE: DEG MN.T H PRE = 088 12 W 1

NO. OF LEVELS = 53

DATA TYPE = MBT

ORIGINATORS CRUISE = 65-A-16

ORIGINATORS CONS = 6-41

BOTTOM HIT DEPTH = NO

PR OB = +99

INS TRM = +99

DIG MTH = 1

INTE RVAL = 247

TREAT STORE = 02

DNP OSV =

CAL DPTH =

CAL TEMP =

DEPTH CORR =

TEMP CORR =

REFERENCE TYP =

QC TEMP =

DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP	DEPTH	TEMP
0	24.80	35	24.80	70	24.80	105	24.70	140	24.50	175	22.00	210	19.60	245	17.60
5	24.80	40	24.80	75	24.80	110	24.70	145	24.00	180	21.50	215	19.30	250	17.50
10	24.80	45	24.80	80	24.70	115	24.70	150	23.60	185	21.00	220	19.20	255	17.20
15	24.80	50	24.80	85	24.70	120	24.70	155	23.20	190	20.80	225	18.70	260	17.00
20	24.80	55	24.80	90	24.70	125	24.60	160	22.70	195	20.60	230	18.50		
25	24.80	60	24.80	95	24.70	130	24.60	165	22.40	200	20.30	235	18.30		
30	24.80	65	24.80	100	24.70	135	24.60	170	22.20	205	20.00	240	18.00		

Description -

This product is a formatted printout of data selected from any of NODC's four bathythermograph (BT) data files. The printout includes header information (e.g., NODC reference number, date, time, position, area, ship code) and pairs of temperature-depth values. On output these data may be presented at the depth levels at which they are stored (5 m increments for MBT; inflection points for XBT and IBT; originator defined depth levels for SBT) or interpolated to a uniform depth increment (e.g., 5 m or 10 m) or a uniform temperature increment. The sample shown is an excerpt from an MBT Data Listing at 5 m depths.

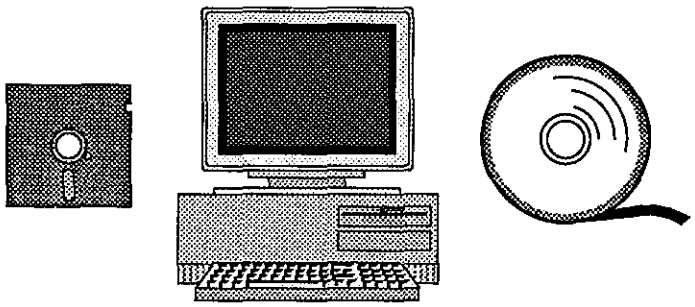
Specifications/Options -

This product is available for data in NODC's mechanical bathythermograph (MBT), expendable bathythermograph (XBT), radio message bathythermograph (IBT), or selected level bathythermograph (SBT) data files. The user must specify:

(1) data selection criteria, and

(2) output option: data at reported depths or interpolated to uniform depth or temperature increment.

6.2.5 Bathythermograph Data Fixed-Length Records



DIGITAL OUTPUT ONLY

Description -

This product is a magnetic tape of selected bathythermograph data in 80-byte fixed-length records. The tape contains the same type of data as presented in the formatted BT Data Listings (Sections 6.2.4). The output options are the same as for the listings: data at depth levels at which they are stored (5 m increments for MBT; inflection points for XBT and IBT; originator defined depth levels for SBT) or interpolated to a uniform depth increment (e.g., 5 m or 10 m) or a uniform temperature increment.

Specifications/Options -

This product is available for data in any of the NODC's Bathythermograph Data Files or for merged data from more than one of the files. The user must specify:

(1) data selection criteria,

(2) output depth option, and

(3) output medium characteristics (for tape or diskette) or electronic transfer (for small data sets).

6.3 Data Summaries, Computations, and Statistical Analyses

In addition to providing copies of data records or formatted listings of data from its data files, NODC can also provide users with a variety of data products in which selected data are summarized, subject to statistical analyses, and presented in tabular or graphic form. These data products, which include several of the standard oceanographic presentations such as temperature-salinity plots, are described in the following pages.

6.3.1 Vertical Array Summary

SOUND VEL VERTICAL ARRAY SEASONAL SUMMARY
MONTHS PRESENT= 1, 2, 3

10 SQR 7501 1 SQR 99

DEPTH	MAX	AVG	MIN	NUMBER	STAN DEV
.0	1490.9	1488.9	1486.7	4	1.5
10.0	1491.0	1489.3	1487.7	7	1.2
20.0	1491.2	1490.0	1489.1	7	.8
30.0	1491.4	1490.2	1489.3	7	.8
50.0	1491.7	1490.4	1489.6	7	.8
75.0	1492.1	1490.8	1490.1	7	.8
100.0	1492.5	1491.1	1490.5	7	.7
125.0	1492.9	1491.5	1490.9	7	.8
150.0	1493.3	1491.8	1491.3	7	.7
200.0	1494.0	1492.5	1492.1	7	.7
250.0	1494.5	1492.7	1490.3	10	1.1
300.0	1495.1	1493.1	1490.0	12	1.4
400.0	1496.0	1494.5	1491.2	12	1.4
500.0	1496.7	1495.2	1492.4	12	1.4
600.0	1497.7	1494.6	1490.3	13	2.2
700.0	1498.4	1493.5	1489.9	13	2.6
800.0	1497.8	1492.0	1488.6	12	2.6
900.0	1496.3	1490.9	1488.1	12	2.3
1000.0	1494.8	1490.2	1487.9	11	1.9
1100.0	1493.2	1489.6	1487.6	11	1.5
1200.0	1492.1	1489.4	1487.7	11	1.1
1300.0	1491.6	1489.8	1488.6	10	.8
1400.0	1491.7	1490.3	1489.6	10	.6
1500.0	1491.4	1491.1	1490.8	4	.3
1750.0	1494.7	1494.3	1494.0	4	.3

Description -

This product is a summary of a specified parameter versus depth. It is available either as a computer listing or on magnetic tape or diskette. The tabular presentation lists: (1) depth, (2) maximum value (of parameter at that depth), (3) average value, (4) minimum value, (5) number of observations, and (6) standard deviation. The sample shown is a summary of sound velocity data from the Oceanographic Station Data File for one one-degree square, all years, months January-March.

Specifications/Options -

Vertical Array Summaries can be produced from data in the Oceanographic Station, Low-resolution CTD/STD, Bathythermograph Data Files. Parameters that can be summarized are temperature, salinity, sigma-t, sound velocity, dynamic depth anomaly, pH, dissolved oxygen, nitrite, nitrate, silicate, phosphate, and total phosphorus. User must specify:

(1) parameter/data file,

(2) time period (years; months or seasons),

(3) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree squares and six-minute by six-minute squares),

(4) depth interval (5 m, 10 m, or NODC standard depths), and

(5) output medium characteristrics (printout, tape, or diskette) or electronic transfer (for small data sets).

6.3.2 Ship Drift Surface Currents/Short Summary

```
          NODC SURFACE CURRENT (SHIPS DRIFT) SHORT SUMMARY

10-DEGREE SQUARE 1110 1-DEGREE SQUARE 58                    MONTHS 1  TO 3
 RESULTANT DIRECTION 336  TOTAL OBSERVATIONS    447  NORTH COMPONENT    .4
 RESULTANT SPEED      .5  NUMBER OF CALMS        21   EAST COMPONENT   -.2

10-DEGREE SQUARE 1110 1-DEGREE SQUARE 58                    MONTHS 4  TO 6
 RESULTANT DIRECTION 336  TOTAL OBSERVATIONS    409  NORTH COMPONENT    .5
 RESULTANT SPEED      .6  NUMBER OF CALMS        20   EAST COMPONENT   -.2

10-DEGREE SQUARE 1110 1-DEGREE SQUARE 58                    MONTHS 7  TO 9
 RESULTANT DIRECTION 325  TOTAL OBSERVATIONS    545  NORTH COMPONENT    .6
 RESULTANT SPEED      .7  NUMBER OF CALMS        13   EAST COMPONENT   -.4

10-DEGREE SQUARE 1110 1-DEGREE SQUARE 58                    MONTHS 10 TO 12
 RESULTANT DIRECTION 309  TOTAL OBSERVATIONS    437  NORTH COMPONENT    .2
 RESULTANT SPEED      .3  NUMBER OF CALMS        36   EAST COMPONENT   -.3
```

Description -

This product is a summary of surface current (ship drift) observations. For selected area(s) and time period(s) the total number of observations, number of calms, resultant current direction and speed, and north and east current components are presented. The sample shown is a summary by season for one one-degree square in the Gulf of Mexico. This product and the Ship Drift Surface Currents/Long Summary (Sec. 6.3.3) are the only NODC data products that do not use the WMO ten-degree numbering system; they both use the Modified Canadian ten-degree square numbering system (Sec. 15.1).

Specifications/Options -

This product is generated from data in NODC's Ship Drift Surface Current Data File. Users must specify:

(1) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree or six-minute by six-minute square),

(2) time period (months, seasons), and

(3) output medium characteristics (printout, magnetic tape, or diskette) or electronic transfer (for small data sets).

6.3.3 Ship Drift Surface Currents/Long Summary

NODC SURFACE CURRENT (SHIPS DRIFT) LONG SUMMARY

10-DEGREE SQUARE 1110 1-DEGREE SQUARE 58 MONTHS 7 TO 9
RESULTANT DIRECTION 325 TOTAL OBSERVATIONS 545 NORTH COMPONENT .6
RESULTANT SPEED .7 EAST COMPONENT -.4

DISTRIBUTION OF INDIVIDUAL OBSERVATIONS

	KNOTS(CM/SEC)	N	NE	E	SE	S	SW	W	NW	SUM	PER-CENT
	CALM									13	2.4
	0.1 (5)	2	1	0	0	0	0	1	3	7	1.3
S	0.3 (15)	10	7	8	3	4	2	5	4	43	7.9
P	0.5 (26)	20	8	6	8	7	2	14	16	80	14.7
E	0.7 (36)	10	2	4	4	8	6	8	15	57	10.5
E	0.9 (46)	15	8	3	2	3	2	11	23	67	12.3
D	1.1 (57)	22	3	3	2	3	3	10	17	63	11.6
	1.3 (67)	8	2	0	1	3	2	11	14	41	7.5
C	1.5 (77)	12	2	0	1	3	0	12	17	47	8.6
L	1.7 (88)	9	2	1	0	2	0	7	7	28	5.1
A	1.9 (98)	10	0	0	0	0	0	2	9	21	3.9
S	2.5 (129)	24	2	2	1	0	0	11	25	65	11.9
S	3.0 (154)	1	0	0	0	0	0	2	2	5	.9
	3.5 (180)	5	0	0	0	0	0	1	0	6	1.1
	4.0 (206)	1	0	0	0	0	0	1	0	2	.4
	>4.0(>206)	0	0	0	0	0	0	0	0	0	.0
SUM OF OBS.		149	37	27	22	33	17	95	152		
PERCENT OBS.		28.0	7.0	5.1	4.1	6.2	3.2	17.9	28.6		100.0
MEAN SPEED		1.2	.8	.7	.7	.8	.7	1.2	1.2		
MAX. SPEED		3.9	2.5	2.5	2.2	1.7	1.3	3.9	3.0		
STD DEVIATION		7.9	5.6	5.6	4.6	4.3	3.1	7.2	6.5		

Description -

This product is a summary of surface current (ship drift) observations. In addition to the information presented in the Ship Drift Surface Currents/Short Summary (Section 6.3.2), the Long Summary also includes a statistical distribution and analysis of observations by 15 speed classes and eight compass directions. The sample shown is the Ship Drift Surface Currents/ Long Summary for summer (July-September) corresponding to the short summary shown in Section 6.3.2. This product and the Ship Drift Surface Currents/Short Summary (Sec. 6.3.2) are the only NODC data products that do not use the WMO ten-degree numbering system; they both use the Modified Canadian ten-degree square numbering system (Sec. 15.1).

Specifications/Options -

This product is generated from data in NODC's Ship Drift Surface Current Data File. Users must specify:

(1) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree or six-minute by six-minute square),

(2) time period (months, seasons), and

(3) output medium characteristics (printout, tape, diskette) or electronic transfer (for small data sets).

6.3.4 Mixed Layer and Thermocline Analysis

NODC MIXED LAYER & THERMOCLINE SUMMARY
MIXED LAYER CRITERIA= .2 THERMOCLINE CRITERIA= .3/10 METERS

SUMMARY			MIXED LAYER					THERMOCLINE				
10SQ	1SQ	MONTH	MAX	MEAN	MIN	NUMBER	SDEV	MAX	MEAN	MIN	NUMBER	SDEV
1005	80	1	50.0	50.0	50.0	1	.0	65.0	65.0	65.0	1	.0
1005	80	2	80.0	80.0	80.0	2	.0	85.0	85.0	85.0	2	.0
1005	80	4	50.0	50.0	50.0	1	.0	65.0	65.0	65.0	1	.0
1005	80	5	20.0	7.5	.0	4	8.3	125.0	62.5	35.0	4	36.3
1005	80	6	20.0	8.3	.0	6	6.9	75.0	53.3	25.0	6	16.7
1005	80	7	30.0	21.2	10.0	8	9.3	85.0	53.7	15.0	8	26.2
1005	80	8	90.0	90.0	90.0	1	.0	135.0	135.0	135.0	1	.0
1005	80	10	20.0	20.0	20.0	1	.0	65.0	65.0	65.0	1	.0
1005	80	11	70.0	65.0	60.0	2	5.0	145.0	125.0	105.0	2	20.0
1005	80	12	80.0	80.0	80.0	1	.0	95.0	95.0	95.0	1	.0
1005	81	1	60.0	60.0	60.0	1	.0	65.0	65.0	65.0	1	.0
1005	81	2	90.0	68.3	50.0	6	14.6	105.0	83.3	65.0	6	14.6
1005	81	3	50.0	32.5	.0	4	20.5	105.0	90.0	75.0	4	11.2
1005	81	4	40.0	40.0	40.0	1	.0	145.0	145.0	145.0	1	.0
1005	81	5	40.0	35.0	30.0	2	5.0	95.0	70.0	45.0	2	25.0

Description -

This product is a tabular listing that presents values of the depth to the bottom of the mixed layer and the center of the seasonal thermocline by month for specified geographic area. Criteria for defining these features are specified by the user. For both mixed layer depth and thermocline depth, the listing presents (1) maximum value, (2) mean value, (3) minimum value, (4) number of observations, and (5) standard deviation. The mixed layer and thermocline criteria upon which the analysis is based are printed in the header. The sample shown is an excerpt from an analysis using XBT data for several one-degree squares in the Indian Ocean off Somalia.

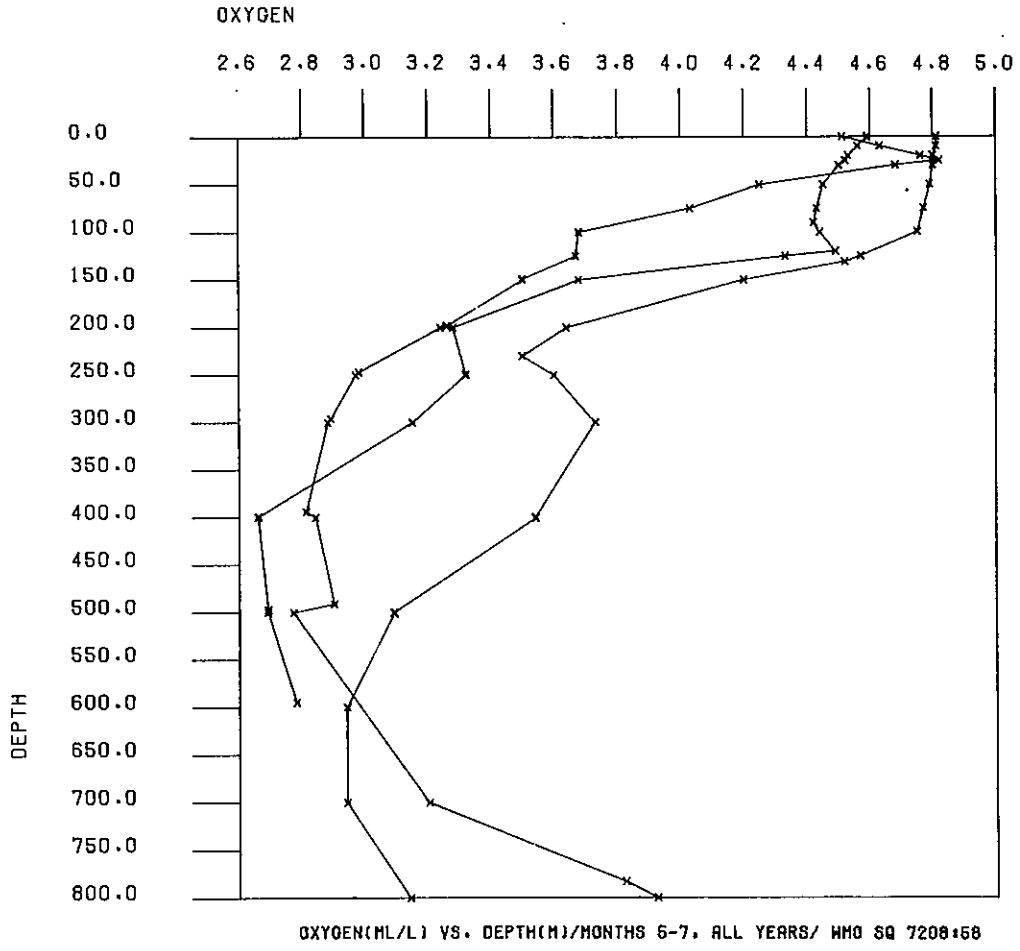
Specifications/Options -

Mixed Layer-Thermocline Analyses can be produced from any of the major files containing temperature-depth data. The user must specify:

(1) data file, geographic area, subsquare size (one- or one-quarter degree) and other data selection criteria;

(2) mixed layer criterion (temperature increment in °C to tenths) and thermocline criterion (temperature gradient specified as temperature increment in °C to tenths for 10 m depth interval).

6.3.5 Parameter Versus Depth Plot



Description -

This product is a computer plot of a selected data parameter versus depth. Plots can be produced for individual stations or as composites in which data meeting user-specified selection criteria are overplotted. The sample shown is a composite plot of oxygen data from the Oceanographic Station Data File. The data (three stations) are from a single one-degree square in the Gulf of Mexico, for all years, but months May-July only.

Specifications/Options -

Parameter Versus Depth Plots can be produced for data in the Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files. The requester must specify:

(1) parameter, data file, and other data selection criteria;

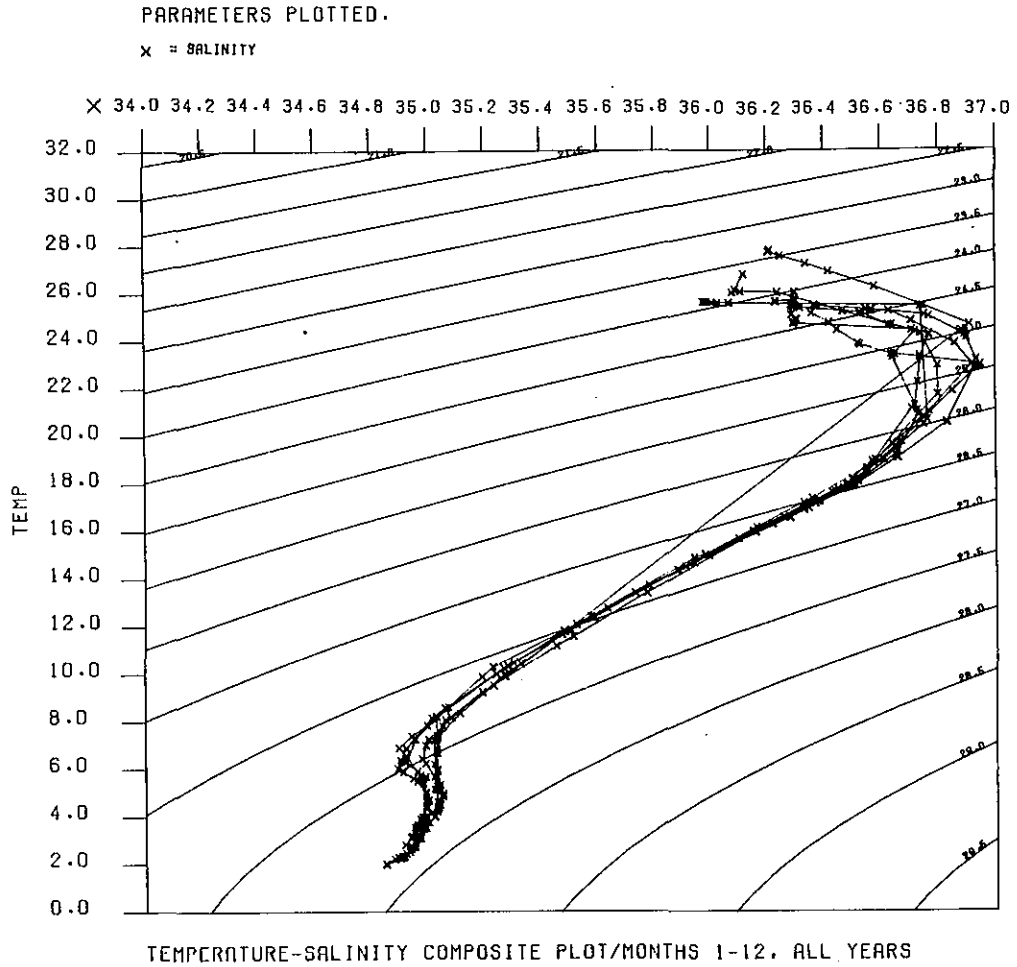
(2) individual station plots or composite plot;

(3) plotted points connected by lines or not;

(4) parameter and depth ranges to be plotted (depends on available data depth); and

(5) parameter and depth increments for tick marks on x and y axes.

6.3.6 Parameter Versus Parameter Plot



Description -

This product is a computer plot showing the distribution of a selected dependent parameter versus a selected independent parameter. Individual stations may be plotted or composite plots generated in which data meeting user specified selection criteria are overplotted. Temperature-salinity plots automatically include isolines of sigma-t at a contour interval of 0.5. The sample shown is a temperature-salinity composite plot. The data are stations selected from the Oceanographic Station Data File in a single five-degree square.

Specifications/Options -

Parameter Versus Parameter Plots may be produced from data in the Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files. The requester must specify:

(1) data file, independent and dependent parameters, and other data selection criteria;

(2) individual station plots or composite plot;

(3) plotted points connected by lines or not;

(4) parameter ranges to be plotted; and

(5) parameter increments for tick marks on x and y axes.

6.3.7 Dynamic Height Computation

NODC GAS APPLICATIONS FILE

ORIGFILE	COUNTRY	CRUISE	CONSEC	SHIP	YEAR	MONTH	DAY	LATD	MIN	LONDEG	MIN	AREA	10SQ	5SQ	2SQ	1SQ	1/4SQ	6MIN	IND	DEP	NUMBER	DEPTH	HOURS
3	06	50201	81	HH	74	5	7	60	440	13	10	10	7601	1	2	3	3	70	1	44	26	1205	190

DEPTH	.0	10.0	15.0	20.0	30.0	50.0	65.0	75.0	100.0	115.0
INTDYNHT	.773990	.765611	.761313	.757010	.748492	.731704	.719270	.711144	.691876	.680822
DEPTH	125.0	150.0	200.0	250.0	265.0	300.0	365.0	400.0	500.0	565.0
INTDYNHT	.673521	.655218	.618368	.581270	.570066	.543823	.494967	.468399	.391849	.341153
DEPTH	600.0	700.0	715.0	800.0	900.0	1000.0				
INTDYNHT	.313583	.234706	.222681	.155344	.077060	.000000				

ORIGFILE	COUNTRY	CRUISE	CONSEC	SHIP	YEAR	MONTH	DAY	LATD	MIN	LONDEG	MIN	AREA	10SQ	5SQ	2SQ	1SQ	1/4SQ	6MIN	IND	DEP	NUMBER	DEPTH	HOURS
3	26	50031	49	99	38	6	29	60	190	13	480	10	7601	1	2	3	2	38	1	44	23	1150	160

DEPTH	.0	10.0	20.0	30.0	50.0	75.0	100.0	125.0	150.0	200.0
INTDYNHT	.669616	.659535	.649526	.639736	.622644	.604339	.586511	.568920	.551445	.516738
DEPTH	250.0	300.0	394.0	400.0	500.0	591.0	600.0	700.0	788.0	800.0
INTDYNHT	.482021	.447054	.381346	.377102	.307306	.244914	.238829	.174440	.120429	.113180
DEPTH	900.0	985.0	1000.0							
INTDYNHT	.055302	.008157	.000000							

Description -

This product is a formatted listing of computed values of integrated dynamic height. The values are computed from data at individual oceanographic stations and are based on up to a maximum of four user-specified reference depth levels. Header information identifying the oceanographic station (e.g., country, NODC cruise number, consecutive station number, position) is printed out along with the value of integrated dynamic height at depth levels down to the specified reference level depth. The sample shown is an excerpt from a dynamic height listing for oceanographic stations in a one-degree square in the North Atlantic.

Specifications/Options -

This product is available for data in either the Oceanographic Station or Low-resolution CTD/STD Data Files. The user must specify:

(1) data selection criteria, and

(2) up to four reference depths.

6.3.8 Isentropic Analysis

ISENTROPIC ANALYSIS OF NODC STATION DATA

NODC CRUISE= 2650031 NODC CONSEC= 49 LAT=60 DEG,19.0 MIN N LON= 13 DEG,48.0 MIN W DATE= 6/29/38

SIGMA-T				DEPTH		TEMP		SALINITY		PRESSURE					
		RECOMPUTE										10**5	DYNHT	INTGR	ACCEL/
LEVEL	MEAN	LEVEL	DIFF	LEVEL	CHANGE/	LEVEL	MEAN	LEVEL	MEAN	LEVEL	INTERVAL/	DELTA	ANOM	DYNHT	POTNL/
27.09		27.09	.00	.0		10.66		35.30		.0		98.2		.61	.61
	27.14				34.0		10.43		35.32		34.9	92.9	.03		
27.20		27.20	.00	34.0		10.19		35.34		34.9		88.5		.58	.61
	27.30				41.0		9.62		35.34		42.1	79.0	.03		
27.40		27.40	.00	75.0		9.04		35.34		77.0		70.4		.54	.60
	27.50				643.0		7.98		35.26		660.7	60.7	.40		
27.60		27.60	.00	718.0		6.91		35.19		737.7		61.8		.14	.60
	27.66				255.2		6.28		35.16		262.3	55.5	.14		
27.71		27.72	.00	973.2		5.65		35.13		1000.0		52.7		.00	.52

Description -

This product is a formatted listing that presents isentropic analyses of selected oceanographic stations. For each station interpolated or computed values of oceanographic parameters are presented at sigma-t levels determined by a user-specified sigma-t increment. If the user-specified sigma-t increment is 0.2 and the surface value is 23.42, for example, parameter values will be presented at 23.60, 23.80, and so on down to the station bottom or specified reference pressure level. Interpolated values of depth, temperature, and salinity and computed values of pressure, specific volume anomaly, dynamic depth anomaly, integrated dynamic height, and acceleration potential are shown at each sigma-t level. Averages and changes are computed between each pair of adjacent sigma-t levels, and sigma-t is back-computed from interpolated values as a check. The sample shown is a computation for a single station taken on a Danish cruise in the North Atlantic in 1938.

Specifications/Options -

This product can be generated from data in the Oceanographic Station and Low-resolution CTD/STD Data Files. The user must specify:

(1) data selection criteria,

(2) sigma-t increment, and

(3) pressure reference level.

7.0 PUBLICATIONS

The National Oceanographic Data Center produces publications that describe its data holdings, products, and services; provide summaries or analyses of marine environmental data; document its data processing formats, procedures, and systems; or provide general marine science information,

NODC's serial publications include:

- **Key to Oceanographic Records Documentation.** The KORD series is devoted to publications that summarize or describe NODC data or information holdings. These include various marine atlases and data inventories as well as the *NODC Users Guide*. Frequency: Irregular.

- **NESDIS Environmental Inventory.** The purpose of publications in this series is to show in an easily understandable form the major types of environmental data available from the NESDIS data centers. Each publication presents data inventory information for a different area or region of the globe. NODC has coordinated production of publications issued to date in this series. Frequency: Irregular.

- **NODC Environmental Information Bulletin.** This series contains two- to six-page fliers announcing new NODC publications, data products, and services and providing information on how to order them. Frequency: Irregular.

- ***Mariners Weather Log.*** Each issue includes articles and regular features describing monthly mean weather and severe storms of the North Atlantic and North Pacific. Weather-related ship casualties are listed and, when possible, identified with the storms that caused them. The Log provides complete, comprehensive coverage of tropical cyclones and presents worldwide tropical cyclone track charts. The Log is a valuable source of information to shipboard weather observers, merchant seamen, shipping companies, research meteorologists and oceanographers, yachtsmen, and others with maritime interests. Frequency: Quarterly.

World Data Center A for Oceanography produces three serial publications:

- ***Oceanographic Data Exchange.*** This report provides an annual summary of oceanographic data exchange activities of WDC-A, Oceanography. Data and data inventory forms received are tabulated by nation, ship, cruise, and type of format and observation as appropriate. Both annual data submissions and cumulative totals received by the Center to date are reported. Frequency: Annual.

- ***Change Notices* to the *Catalogue of Data.*** The *Change Notices* list and describe all data received by WDC-A, Oceanography. They supplement the original six-volume *Catalogue of Data*, which includes *Change Notices* Nos. 1-16. The types of data covered include oceanographic serial stations, bathythermographs, current measurements, and biological, meteorological, and sea surface data. An alphabetical index of ship names and geographical index of ocean areas assist the user in selecting required data. Frequency: Annual.

- ***Supplements* to the *Catalogue of Accessioned Publications*.** This series of cataloguess lists all oceanographic publications received by WDC-A, Oceanography, along with keyword and author indexes. Copies or extracts of non-copyrighted materials listed in these supplements are available on request. Frequency: Annual.

In addition to publications in its regular series already listed, NODC also from time to time issues other general and specialized publications. The following pages of this section list all available NODC publications. The list includes publication prices and information on how to submit orders.

Publication Sources and Charges:

This list includes NODC publications that are available either directly from the NODC or from the National Technical Information Service (NTIS), the U.S. government facility that provides a central repository for reports resulting from Federally conducted or sponsored research and development activities. The AD, PB, and COM numbers are NTIS stock numbers; all publications having such a number are available from NTIS as a paper photocopy or on microfiche at their current prices (prices given in this list are NODC prices). Please note that publications listed as "Out of Print" are no longer available from NODC and may be obtained **only** from NTIS.

Most NODC publications are available at specified prices. Data announcements, order forms, and certain other publications are free. Prepayment is required for non-Federal customers and may be made by:

- check (in U.S. dollars, drawn on a bank in the United States, and payable to "Department of Commerce/NOAA/NODC")
- credit card (Visa or MasterCard only).

Purchase Orders can be accepted as prepayment from non-Federal customers only with prior authorization from the NODC. If this authorization is not obtained, an additional billing fee of $18 will be assessed against such orders.

Addresses and Telephone Numbers for Orders:

National Oceanographic Data Center
U.S. Department of Commerce
NOAA/NESDIS E/OC21
Washington, DC 20235

Telephone: 202-673-5549 (commercial) or
FTS 673-5549

National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

Telephone: 703-487-4600 (commercial) or
FTS 737-4650

■ KEY TO OCEANOGRAPHIC RECORDS DOCUMENTATION (KORD)

KD-2	Temperature, Salinity, Oxygen, and Phosphate in Waters Off United States (1974)	
	Vol. I Western No. Atlantic; COM-75-50018	NTIS
	Vol. II Gulf of Mexico; COM-75-50019	$8.75
	Vol. III Eastern North Pacific; COM-75-50020	$15.75
KD-5	Computer Programs in Marine Science (1976) PB-258 082	NTIS
KD-6	Summary of Oceanographic Data Collected by U.S. Cruises in the CINECA Area (1978) PB-279 397	NTIS
KD-7	NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS/MARAD Ship of Opportunity Program for 1976 (1978) PB82-126715	$3.00
KD-8	... " ... for 1977 (1979) PB-295 783	$3.00
KD-9	... " ... for 1978 (1979) PB82-126723	$3.00
KD-10	... " ... for 1979 (1980) PB82-126731	$3.00
KD-11	... " ... for 1980 (1983) PB83-238923	$3.00
KD-12	... " ... for 1981 (1983) PB84-122662	$3.00
KD-13	... " ... for 1982 (1983) PB 84-131465	$3.00
KD-14	National Oceanographic Data Center Users Guide (Second Edition, 1991)	Free
KD-15	NODC Taxonomic Code (4th edition) (1984)	
	- Paper copy (738 pages in two volumes)	$50.00
	- Microfiche (5 fiche, 48x reduction)	$7.00
	(5th edition of the NODC Taxonomic Code available in digital form only; see EB-88-7)	
KD-16	Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1986 (1987) PB88-140090/AS	Free
KD-17	Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1987 (1989) PB89-215222/AS	Free

■ NESDIS ENVIRONMENTAL INVENTORY

EI-1	Environmental Data Inventory for the Antarctic Area (1984) PB85-107944	$10.00
EI-2	Oceanographic Data for Development of the U.S. Exclusive Economic Zone (1984) PB85-106458	$9.00
EI-3	Environmental Data Sources for the Chesapeake Bay Area (1985) PB86-110640/AS	Free

■ OCEAN POLLUTION DATA AND INFORMATION NETWORK

-- Publications produced by NODC or jointly by NODC and other offices

OP-1	Marine Toxic Substances and Pollutants Data Exchange Format (NODC File 144) (1984)	Free
OP-2	Inventory of Non-Federally Funded Marine Pollution Research, Development and Monitoring: South Atlantic and Gulf of Mexico Region (1984)	Free
OP-3	Handbook of Federal Systems and Services for Marine Pollution Data and Information (1988)	Free
OP-4	A Guide to Marine Pollution Related Data Collected by Federally Sponsored Projects Identified in the FY 1978-1983 National Marine Pollution Program Catalogs (1988)	Free

-- Publications produced by other offices that are available from the NODC

NP-3	Summary of Federal Programs and Projects in the National Marine Pollution Program: FY 1988 Update (Available Sep. 1990) *[Limited copies of previous editions also available]*	Free
NP-8	Federal Plan for Ocean Pollution Research, Development, and Monitoring, Fiscal Years 1988-1992 (1988)	Free
NP-9	State-Issued Fish Consumption Advisories: A National Perspective (1990)	Free
NP-10	National Status & Trends Program for Marine Environmental Quality	Free
NP-11	Coastal and Estuarine Assessment Branch FY 90 Program Plan and FY 89 Accomplishments (1990)	Free
NP-12	Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual (1989)	Free
NP-12	National Directory of Citizen Volunterr Environmental Monitoring Programs (1990)	Free
NP-12	Lake Ontario: A Great Lake in Transition (1989)	Free

■ NOAA LIBRARY AND INFORMATION NETWORK

NOAA Library Guides *- Guides to the collections or special publications on selected topics*

NL-90-1:	A Précis of the NOAA Library's CD-ROM Holdings	Free
NL-91-1:	Audiovisual Materials in the NOAA Central Library	Free
NL-91-2:	Users Guide to the NOAA Central Library's Rare and Special Collections	Free
NL-91-3:	The Directory of U.S. Marine CD-ROMs, March 1991	Free
NL-91-4:	CO2 Transport and Transformation in the Oceans	Free
NL-91-5:	Influence of Mid-Ocean Ridge Processes on the Ocean	Free
NL-91-6:	Ocean and Global Climate Change	Free

Current References *- Selected citations, including abstracts, retrieved from relevant databases*

CR-89-1:	Environmental Impact of Oil Spills in Polar Waters	Free
CR-89-2:	Coastal Oceans	Free
CR-89-3:	Policy and Science of Exclusive Economic Zone Mapping	Free
CR-90-1:	Global Climate Change	Free
CR-90-2:	Data Management for Global Change	Free
CR-91-1:	Ocean Dumping	Free
CR-91-2:	Weather Service Modernization	Free
CR-91-3:	Meteorology and Oceanography of the Middle East	Free

Brief Bibliography *- Selective guide to the literature on specific topics*

BB-89-1:	Tornadoes	Free
BB-89-2:	Weather and Health	Free
BB-89-3:	Hurricanes	Free
BB-89-4:	Drought	Free
BB-89-5:	Meteorological Satellites	Free
BB-89-6:	Lightning	Free
BB-89-7:	Fog	Free
BB-89-8:	Meteorological Journals	Free
BB-90-1:	Meteorological Books	Free
BB-90-2:	Snowstorms	Free
BB-90-3:	Coral Reef Management	Free
BB-90-4:	Floods	Free
BB-90-5:	Marine Sanctuaries	Free
BB-90-6:	Cloud Seeding	Free
BB-90-7:	Whales	Free
BB-90-8:	Total Quality Management	Free
BB-90-9:	Ocean Energy	Free
BB-91-1:	Wind Power	Free
BB-91-2:	Geothermal Energy Sources	Free
BB-91-3:	Red Tides	Free

BB-91-4:	Drift-nets	Free

■ NODC ENVIRONMENTAL INFORMATION BULLETIN

(fliers announcing new NODC data and information products and services)

EB-80-1:	Oceanographic Data Collected in the Mid-Ocean Dynamics Experiment (MODE-1) March to July 1973	Free
EB-82-1:	Announcement of Availability - Global Ocean Data Inventory: September 1978-March 1980	Free
EB-82-3:	Data Announcement: Southern Ocean Atlas Data Tapes	Free
EB-83-1:	Data Announcement: Data from the Nearshore Sediment Transport Study (NSTS) Torrey Pines Experiment	Free
EB-83-2:	Data Announcement: Data from the Nearshore Sediment Transport Study (NSTS) Santa Barbara Experiment	Free
EB-83-3:	Data Announcement: Climatological Atlas of the World Ocean, Annual and Seasonal Analyses	Free
EB-83-4:	Publication Announcement *(NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS / MARAD Ship of Opportunity Program for 1980)*	Free
EB-83-5:	The Ocean Pollution Data and Information Network (OPDIN)	Free
EB-83-6:	Publication Announcement *(An Environmental Guide to Ocean Thermal Energy Conversion (OTEC) Operations in the Gulf of Mexico)*	Free
EB-84-1:	Publication Announcement *(NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS / MARAD Ship of Opportunity Program for 1981)*	Free
EB-84-2:	Publication Announcement *(NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS / MARAD Ship of Opportunity Program for 1982)*	Free
EB-84-3:	Publication Announcement *(National Oceanographic Data Center Users Guide)*	Free
EB-84-4:	Publication Announcement *(Environmental Data Inventory for the Antarctic Area)*	Free
EB-84-5:	NODC Marine Toxic Substances and Pollutants Data File	Free
EB-84-6:	Climatological Atlas of the World Ocean, Monthly Analyses	Free
EB-84-7:	Publication Announcement *(Oceanographic Data for Development of the U.S. Exclusive Economic Zone)*	Free
EB-85-1:	Data Announcement: Climatological Atlas of the World Ocean, Seasonal Five-degree Square Statistics	Free
EB-85-2:	Publication Announcement *(Environmental Data Sources for the Chesapeake Bay Area)*	Free

EB-86-2:	NODC Water Temperature Guides	Free
EB-86-3:	National Marine Pollution Information System	Free
EB-87-1:	Worldwide Ocean Water Color/Water Transparency Data	Free
EB-87-2:	FGGE Operational Year Global Ocean Climate Data Base	Free
EB-87-3:	Coastal Recreation Guides	Free
EB-87-4:	Publication Announcement *(Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1986)*	Free
EB-88-1:	Mariners Weather Log	Free
EB-88-3:	SEQUAL/FOCAL Data Sets	Free
EB-88-4:	GEOSAT Wind/Wave Data from the Geodetic Mission	Free
EB-88-5:	Physical/Chemical Oceanographic Data from the NODC	Free
EB-88-6:	Biological Oceanographic Data from the NODC	Free
EB-88-7:	NODC Taxonomic Code, Version 6.0	Free
EB-89-1:	Ocean Pollution Data and Information Network Products and Services	Free
EB-89-2:	National Oceanographic Data Center Publications	Free
EB-89-3:	Publication Announcement *(Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1987)*	Free
EB-89-4:	Pacific Ocean Data on CD-ROM	Free
EB-90-1:	Ocean Chlorophyll and Nutrients Data Set	Free
EB-90-2:	GEOSAT Geophysical Data Records from the Exact Repeat Mission	Free
EB-90-3:	GEOSAT Geodetic Mission Data for the Southern Ocean	Free
EB-91-1:	Sea Level Data from the Pacific and Indian Oceans	Free
EB-91-2:	GEOSAT Crossover Difference Data from the Geodetic Mission	Free

■ NOAA TECHNICAL REPORT (NOAA TR NESDIS/NODC)

TR-1	An Environmental Guide to Ocean Thermal Energy Conversion (OTEC) Operations in the Gulf of Mexico (1983)	$3.00*

■ INTERNATIONAL DECADE OF OCEAN EXPLORATION (IDOE) PROGRESS REPORTS

IDOE-1	January 1970-July 1972; PB-223 331	NTIS
IDOE-2	July 1972-April 1973; PB-226 262	NTIS
IDOE-3	April 1973-April 1974; PB82-123084	NTIS

IDOE-4	April 1974-April 1975; PB82-123092	NTIS
IDOE-5	April 1975-April 1976; PB82-123100	NTIS
IDOE-6	April 1976-April 1977; PB 82-123118	NTIS
IDOE-7	April 1977-April 1978; PB82-123126	NTIS
IDOE-8	April 1978-October 1979; PB82-123134	NTIS

■ MISCELLANEOUS PUBLICATIONS AND INFORMATION PRODUCTS

MS-1	Bibliography on Subsurface Ocean Currents (1974) *Available only on microfiche. 15 microfiche, reduction 24X. 1390 pages.* COM-75-10270	NTIS
MS-2	Guide to CICAR Data (CICAR Regional Data Center) (1977) PB-285-690	NTIS
MS-4	Global Ocean Data Inventory: FGGE (Global Weather Experiment) Operational Year, September 1978 through March 1980 (1981) *Microfiche only; 6,440 pages on 84 sheets of microfiche.*	$25.00
MS-4	NODC's Water Temperature Guide to Atlantic Beaches (1987)	Free
MS-6	NODC's Water Temperature Guide to the Gulf Coast (1985)	Free
MS-7	Mariners Weather Log (Issued quarterly, this publication is available by annual subscription from the: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20042. Shipboard weather observers, shipping companies, academic institutions, and and certain other individuals and institutions are eligible to receive the *Mariners Weather Log* for free. If you think you may qualify, please contact the NODC.)	U.S.: $6.00 Foreign: $7.50

■ GENERAL SERIES

(Series closed; these volumes are now primarily of historical interest.)

G-2	Oceanographic Vessels of the World	
	Volume I (1961) AD-268 451	NTIS
	Volume II (1963) AD-618 942	NTIS
	Volume III (1966) AD-662 848	NTIS
G-3	International Cooperative Investigations of the Tropical Atlantic/EQUALANT I Data Report	
	Volume I AD-618 947	NTIS
	Volume II AD-618 949	NTIS
G-4	A Summary of Temperature-Salinity Characteristics of the Persian Gulf (1964) AD-618 948	NTIS
G-5	EQUALANT II Data Report (1964) AD-618 950	NTIS
G-7	EQUALANT III Data Report (1965) AD-662 849	NTIS
G-8	Guinean Trawling Survey Data Report (1968) AD-704 493	NTIS
G-10	Selected IIOE Track Charts (1966) AD-662 850	NTIS

G-17 Cooperative Investigations of the Caribbean and Adjacent Regions Bibliographies

Volume I:	Bibliography on Meteorology, Climatology, and Physical-Chemical Oceanography (1970)	
	Part 1 - Bibliography AD-713 492	NTIS
	Part 2 - Index AD-713 493	NTIS
Volume II:	Bibliography on Marine Biology (1972) (COM-73-10324)	NTIS
Volume III:	Bibliography on Marine Geology and Geophysics (1972) (COM-73-10325)	NTIS

■ SPECIAL BIBLIOGRAPHIES

(Prepared under contract for NODC by the American Meteorological Society; series closed.)

SB1	Collected Bibliographies on Physical Oceanography (1953-1964) AD-822 528	NTIS
SB2	Bibliography on Marine Seismics (1966) AD-822 529	NTIS
SB4	Bibliography on Marine Corrosion (1967) AD-821 559	NTIS
SB5	Bibliography on Oceanography of the Tropical Atlantic (1967) AD-822 530	NTIS

8.0 INFORMATION AND REFERRAL SERVICES

In addition to providing copies of data from its own data holdings, the NODC can often assist users in locating or obtaining environmental data held by other organizations. NODC can also help users by providing or assisting them in obtaining references to the published literature. For types of data and information not provided by NODC, NODC can frequently provide a service to users by referring them to other agencies and organizations.

Several NOAA services are available that provide information on environmental data files and the published literature:

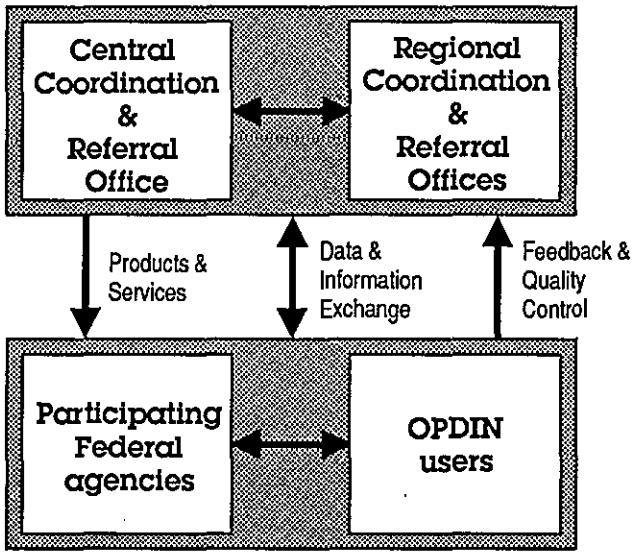
8.1 Ocean Pollution Data and Information Network

The Ocean Pollution Data and Information Network (OPDIN) is a coordinating mechanism established to improve dissemination of data and information resulting from ocean pollution programs conducted or sponsored by the U.S. Federal government. The goals of the Network are to:

- improve the accessibility and usefulness of Federal ocean pollution data and information to both Federal and non-Federal users,
- strengthen Federal interagency communication and coordination regarding ocean pollution data and information, as well as state, regional, and private sector awareness of these resources.

The Network is intended to supplement (rather than replace) existing agency data and information sources and utilizes existing facilities where possible. The OPDIN is headed by a Central Coordination and Referral Office (CCRO), which was established within the National Oceanographic Data Center in May 1981 (Fig. 8.1-1). One of the primary functions of the CCRO is to provide a single contact point for users who need some kind of ocean pollution data or information and who are unsure of where to obtain it. The CCRO is able to provide or assist in providing specific ocean pollution information or data and data products from Federal sources, as well as from state agencies, academic institutions, and other non-Federal facilities.

Figure 8.1-1 OPDIN Components



Contact Point

OPDIN products and services can be requested through the NODC Liaison Offices (Table 3.1-1) or from:

Ocean Pollution Data and Information Network
Central Coordination and Referral Office
National Oceanographic Data Center
NOAA/NESDIS E/OC24
Washington, DC 20235

Telephone: 202-673-5539 (commercial) or FTS 673-5539
E-mail: *NODC.POLLUTION.INFO* on Omnet/SCIENCEnet

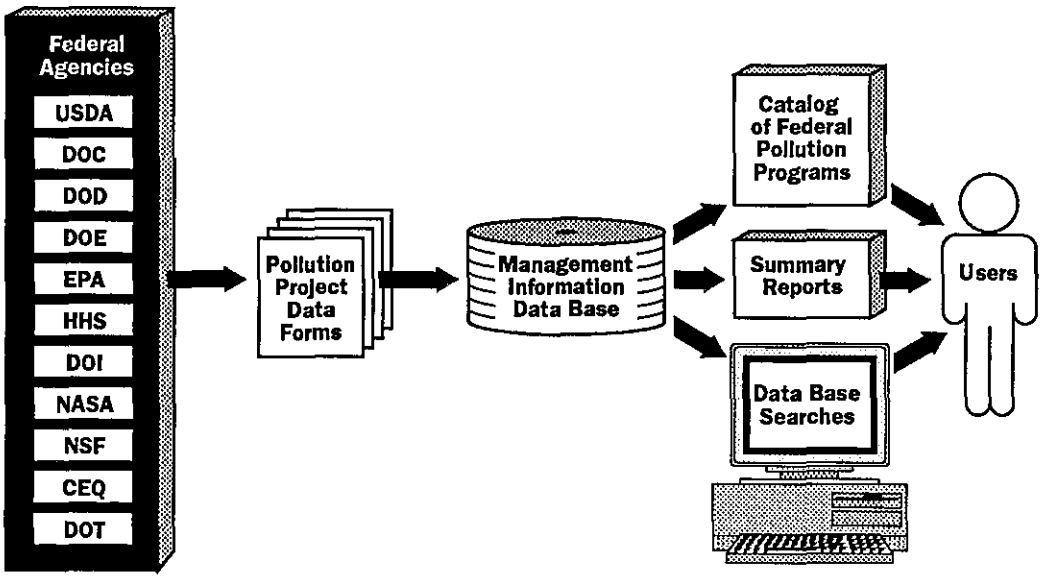
8.2 National Marine Pollution Information System

The National Marine Pollution Information System (NMPIS) is an interactive database containing descriptions of all Federally funded marine pollution projects (Fig. 8.2-1). Each NMPIS record includes:

- project title and description;
- performing, funding, and managing organizations;
- funding and personnel levels;
- pollution cause and specific pollutants under study;
- geographic area; and
- project objectives.

NMPIS can be searched interactively to answer specific questions such as, "What projects are monitoring PCB's in the Great Lakes, and what are their funding levels?" In addition standard reports can be generated that summarize the entire database or selected subsets. NMPIS is used to support NOAA's National Marine Pollution Program Office in its preparation of the five-year Federal Plan and generation of the annual National Marine Pollution Program Catalog of Federal Projects. NMPIS contains over 2500 entries from approximately 100 programs in eleven Federal agencies for past and present projects.

Figure 8.2-1 National Marine Pollution Information System



Contact Point

NMPIS services are available from:

Ocean Pollution Data and Information Network
Central Coordination and Referral Office
National Oceanographic Data Center
NOAA/NESDIS E/OC24
Washington, DC 20235

Telephone: 202-673-5539 (commercial) or FTS 673-5539
E-mail: *NODC.POLLUTION.INFO* on Omnet/SCIENCEnet

8.3 National Environmental Data Referral Service

The National Environmental Data Referral Service (NEDRES) is a NOAA service designed to provide convenient, economical, and efficient access to information about environmental data files held by Federal, state, and local government agencies; universities and research institutions; and private organizations. NEDRES is both a publicly available service that identifies the existence, location, characteristics, and availability conditions of environmental data sets and a national network of Federal, state, and private organizations cooperating to improve access to environmental data.

The key to this service is the NEDRES database, an on-line, computer-searchable catalog and index of environmental data. It contains descriptions of environmental data files, published data sources, data file documentation references, and organizations that make environmental data available. (Note: The NEDRES database contains only descriptions, not the actual data.) The database covers climatological and meteorological, oceanographic, geophysical and geological, geographic, satellite and remote sensing, pollution, and hydrological and limnological data. NEDRES is the successor to and incorporates the previous environmental data referral file known as the Environmental Data Index (ENDEX), which was developed and maintained by NODC. The NEDRES database is accessible on the BRS Information Technologies system via national and international networks such as Telenet and Tymnet. On request NODC can provide further information about NEDRES and how to obtain NEDRES services.

Contact Point

NEDRES searches can be requested from:

National Environmental Data Referral Service
National Oceanographic Data Center
NOAA/NESDIS E/OCx7
Washington, DC 20235

Telephone: 202-673-5548 (commercial) or FTS 673-5548
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

8.4 NODC Liaison Offices

The NODC Liaison Officers are valuable information resources for their regions and can provide personal consultation. The Liaison Officers are knowledgeable about major marine science programs, activities, and key personnel in their regions. Through their networks of personal contacts, they can often provide invaluable information and referral services.

Contact Points

Addresses and telephone numbers of the NODC Liaison Offices are listed in Table 3.1-1.

8.5 NOAA Library and Information Network

The NOAA Library and Information Network (NLIN) consists of the Central Library in Rockville, Md., Branch Libraries in Miami, Fla. and Seattle, Wash., and more than 35 field libraries and information centers throughout the United States (Fig. 8.5-1). A comprehensive list of field libraries and information centers is published in the *NOAA Library and Information Network Directory*. The *Guidebook for Field Library Operations* can assist any NOAA unit interested in establishing a library or information center.

The NOAA Central Library Collection began in 1871 with the establishment of the Weather Bureau Library. The historical collections reflect the organizations that originally housed them. The modern collections, which mirror mission changes over recent decades, are growing by approximately one per cent per year (Fig. 8.5-2). Among the Central Library's holdings is a Rare Book Collection of 1000 volumes that chronicles the origin and growth of scientific disciplines important to NOAA Items in the collection date from the 17th century and include collected papers of outstanding scientists of the 19th and 20th centuries associated with the U.S. Coast and Geodetic Survey, the Weather Bureau, and other antecedents of the modern NOAA. Although the rare books do not circulate, authorized researchers may use them on site.

The full range of library and information services is available to NOAA personnel, NOAA contractors, and other qualified researchers. Members of the general public may only use the collections and facilities on site. At the Central Library both NOAA and non-NOAA users can search CD-ROM (Compact Disc-Read Only Memory) data bases and obtain printouts of the

Figure 8.5-1 NOAA Library and Information Network

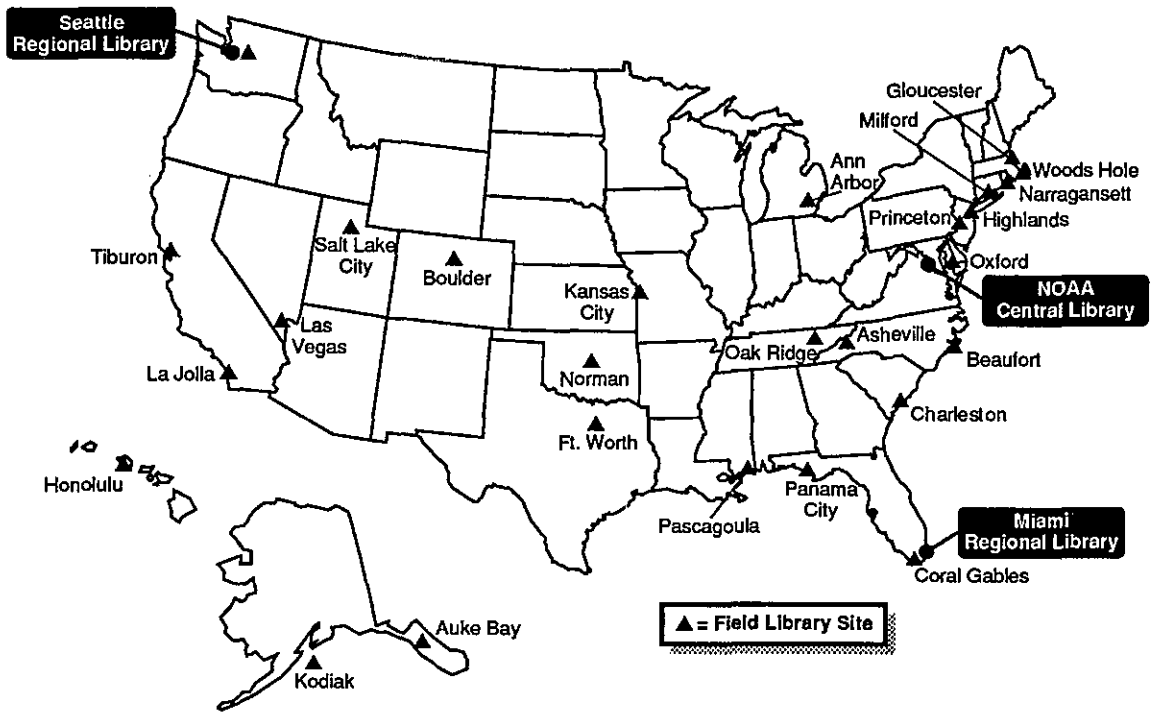
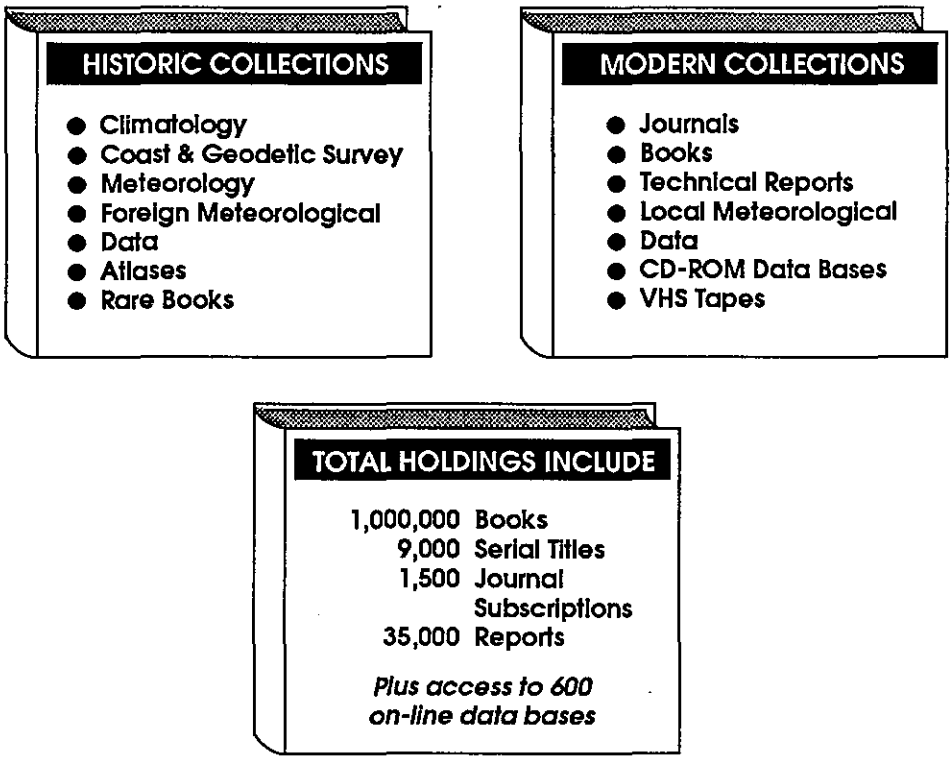


Figure 8.5-2 NOAA Central Library Resources



results. Descriptions of CD-ROM titles available at the NOAA Central Library are listed in *A Precis of the NOAA Library's CD-ROM Holdings*, which is avialable on request. The Central Library also has an extensive hard-copy collection of local climatological data, which visitors can photocopy on site.

Services to NOAA and other Department of Commerce personnel are provided via telephone, inter-office mail, fax, Omnet, U.S. Mail, and special courier (for rush requests). For NOAA personnel and NOAA contractors the Central Library, its branches, and several field libraries can provide on-line searching of over 600 data bases, encompassing technical, non-technical, legal, and medical topics. Such literature searches are tailored to user specifications. Selection criteria may include subject matter, author, time period, geographic area, and sponsoring organization. Some of the most frequently searched data bases include OCLC (an international bibliographic utility), Aquatic Sciences and Fisheries Abstracts, Biosis, Inspec, Meteorological and Geoastrophysical Abstracts, NTIS, Oceanic Abstracts, Georef, Compendex, Computer Data Base, Microcomputer Data Base, and Science Citation Index. Non-NOAA library users can obtain information at any of the NOAA libraries on how to access comparable computer-based data and information retrieval services elsewhere in their locality.

The main catalog to access NOAA's current collections is NOAALINC, which features the data base of the NOAA libraries' holdings on CD-ROM. NOAALINC is located in more than thirty NOAA sites throughout the United States. These libraries support research at the specific laboratories where they are located.

Table 8.5-1 Selected CD-ROMs Available at the NOAA Central Library

- Applied Science and Technology Index
- Aquatic Sciences and Fisheries Abstracts
- Arctic and Antarctic Regions
- Business Periodical Index
- Climatedata
- Cumulative Book Index
- Gloria - Gulf of Mexico
- CPO
- Grolier Electronic Encyclopedia
- Hourly Precipitation
- Library Literature
- Life Sciences Collection
- McGraw-Hill CD-ROM Science and Technical Reference Set
- Microsoft Bookshelf
- NOAA Library and Information Network Catalog (NOAALINC)
- NODC-01: Pacific Ocean Temperature-Salinity Profiles
- NTIS
- PC-SIG Library on CD-ROM
- Reader's Guide to Periodical Literature
- Selected Geomagnetic and Other Solar-Terrestrial Physics Data of NOAA and NASA
- Ulrich's Plus (Guide to Periodicals)
- Water Resources Abstracts
- West Coast Time Series Coastal Zone Color Scanner Imagery
- World Weatherdisc

The NOAA Central Library issues two monthly publications—the Accessions List announcing books and reports recently added to the collection and the Brief Bibliography covering a topic of current interest to NOAA. Examples of these are: *Drought*, *Hurricanes*, and *Coral Reef Management*. Lengthier, more comprehensive bibliographies, titled Current References, are also produced quarterly. Examples include *Coastal Oceans*, *Global Climate Change*, and *Data Management*. The Central Library also publishes joint bibliographies with other agencies. Examples of these are:

- *Marine Debris* (with EPA, 1989)
- *Aquaculture in the Caribbean Basin: A Bibliography (1970- 88)* (with the National Agricultural Library and Oregon State University, 1988)
- *Aquaculture in the Northeast Pacific: A Bibliography* (with the National Agricultural Library and the University of Oregon, 1990)
- *The Potentials of Aquaculture: An Overview and Bibliography* (with the National Agricultural Library, 1989)
- *User Guide to REGIS. A Regional Information System for Microcomputers with an Application to Information on African Aquaculture* (with National Agricultural Library and the Food and Agriculture Organization of the United Nations, 1990) REGIS, an expert system featuring hypermedia, can be used on microcomputer equipment at the Central Library.

Contact Point

The primary point of contact for NOAA Library and Information Network services is the NOAA Central Library in Rockville, Md. A complete list of field library sites can be provided on request.

NOAA Central Library
Reference Services
National Oceanographic Data Center
NOAA/ NESDIS E/OC4
Rockville, MD 20852

Telephone: 301-443-8330 (commercial) or FTS 443-8330
E-mail: *NOAA.LIBRARY* on Omnet/SCIENCEnet

8.6 NOAA Earth System Data Directory

The NOAA Earth System Data Directory provides users with an on-line catalog and index to data files and data sets held by elements of the National Oceanic and Atmospheric Administration. The types of earth measurements contained in these files span nearly the complete range of NOAA disciplines. Most entries at this time describe data held by NOAA's three national data centers, but the Directory will become increasingly comprehensive as other NOAA offices add descriptions of their data holdings. The Directory may be searched by scientific discipline, measured parameters, time period, geographic location, project, and other criteria. The NOAA Directory uses software that was developed by NASA for the NASA Master Directory. It is indirectly linked to other directory systems through the Directory Interchange Format (DIF), which is the format used by NOAA, NASA, and the U.S. Geological Survey for exchange among information systems of directory-level information about data sets. Access to the NOAA Directory is available through direct dial-up or over NASA's NSI-DECnet.

The NOAA Earth System Data Directory

HOW TO FIND NOAA DATA

The NOAA Directory is your tool to locate NOAA data sets. You can use your PC to access the Directory.

Terminal settings:
FULL DUPLEX, 8 BITS, NO PARITY, ONE STOP BIT, 1200 BAUD
Terminal type: VT-100 (preferred)

Via NSI-DECnet:
At the $ prompt, enter: `SET HOST NODC`
At the prompt `USERNAME:`, enter: `NOAADIR`

Via direct dial (1200 baud):
Dial 202-673-5662 or 202-673-5666
At the prompt `XT_COMMAND:`, enter: `C NODC`
At the prompt `USERNAME:`, enter: `NOAADIR`

When you end the session, enter the BREAK key.
At the `XT_COMMAND`, enter: `D`
This disconnects the link to the NODC VAX, and you can hang up.

The NOAA Directory has a system of menus and prompts to lead you through your search session. There is HELP available at any point in your session, or call Gerry Barton at the number below.

If you know of NOAA data sets that should be described in the Directory, please contact your NOAA Directory LO Team Member or Gerry Barton at 202-673-5548.

Contact Point

Information on the NOAA Earth System Data Directory and how to access it is available from the:

NOAA Earth System Data Directory
National Oceanographic Data Center
NOAA/NESDIS E/OCx7
Washington, DC 20235

Telephone: 202-673-5548 (commercial) or FTS 673-5548
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

8.7 NODC Ocean Science Information Exchange

The NODC Ocean Science Information Exchange (NOSIE) is an an experimental prototype system developed to provide frequent NODC users with on-line access to information about its data sets and services. As a prototype, NOSIE is being modified and developed in response to new ideas as well as customer comments and suggestions. NOSIE provides much of the same information that is contained in this *Users Guide*. It also includes modules that provide searchable inventories of some of NODC's major data files, however, as well as other useful features. On request NODC can provide further information about NOSIE and how to access it.

Contact Point

Information about NOSIE is available from:

National Oceanographic Data Center
User Services Branch
NOAA/NESDIS E/OC21
Washington, DC 20235

Telephone: 202-673-5549 (commercial) or FTS 673-5549
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

9.0 FORMATS, CODES, AND ANCILLARY FILES

To support its data processing operations, the NODC developed a number of digital data formats, data codes, and other ancillary files. The data formats were developed to meet the needs of both researchers collecting data in the field and the data management requirements of NODC. Several code systems and other ancillary files were also developed for use with the data formats to simplify recording of information in certain fields and to facilitate processing and selective retrieval of data. For example, NODC has standard codes for identifying chemical compounds, marine organisms, and ships, institutions, and countries from which data have been received.

Copies of NODC data formats and codes are available to users. These materials are often requested by investigators collecting data for submission to the NODC and by individuals and institutions that wish to duplicate NODC data processing practices and procedures. The following pages describe the ancillary files available from the NODC.

9.1 NODC Data Formats and Codes

Description -

Data in NODC's Master Data Files are recorded and stored in digital formats that were developed to meet both the needs of data collectors and NODC's data management requirements (see Section 4.1). Information in certain fields in the formats is recorded by means of standard codes. The codes are used, for example, to report instruments, methods, gear types, certain kinds of environmental conditions, and characteristics and behavior of marine organisms.

Format -

The NODC Data Formats and Codes are available as individual printouts or on a single floppy disk.

9.2 NODC Platform, Institution, and Country Codes

Description -

NODC uses codes of two alphanumeric characters to identify ships (or other observing platforms), institutions, and countries from which data are received. The ship and institution codes provide unique identification when associated with the proper country code. The ship code "AM", for example, is used for both the *Akademik Kurchatov* of the U.S.S.R. and the *Amlac* of Canada, and possibly different ships from other countries. Therefore, to distinguish between these two vessles, the ship code must be associated with the the two-character country code for either the U.S.S.R. (country code 90) or Canada (country code 18).

Format -

The NODC Platform, Institution, and Country Codes are available sorted either by names or by codes on a single floppy disk.

9.3 NODC Taxonomic Code

Description -

The NODC Taxonomic Code is a hierarchical system of numerical codes of up to 12 digits used in digital data records to encode the identity of organisms from viruses to mammals. The Code links the Linnean system of biological nomenclature to a numerical schema that facilitates modern methods of computerized data storage and retrieval. Version 6.0 of the code (July 1990) comprises a total of nearly 90,000 entries, including 75,000 taxonomic records (all levels), 51,000 species records, and 8,000 common names (all levels). At the NODC the code is used in all data bases containing biological data.

In code entries, 10 digits are used to represent five or more levels of classification from phylum to species; two additional digits are available to code subspecies or variety, as necessary. The hierarchical organization of the code enables an organism to be coded to the level to which it is identified. Similarly, in data processing, the code may be used to retrieve data to any recorded taxonomic level.

To provide necessary flexibility in the numerical schema and to provide more information about code entries, the NODC Taxonomic Code is annotated with a series of terms and symbols. These allow for the listing of synonyms, for information about code changes and corrections, and for cross-referencing between related entries.

Format -

The NODC Taxonomic Code is available on magnetic tape (9-track, 1600 BPI, ANSI/ ASCII) or on 10 high-density diskettes (5.25-inch, DS-HD, MS-DOS compatible).

9.4 NODC Chemistry Codes for Marine Toxic Substances and Pollutants

Description -

NODC uses a system of alphanumeric codes for identifying chemical substances in the Marine Toxic Substances and Pollutants Data File (File 144). The code is a slight modification of the system of registry numbers assigned to chemical substances by the Chemical Abstracts Service (CAS) of the American Chemical Society. To the five- to eight-digit CAS registry numbers, NODC adds one heading character to indicate the general class of the compound (e.g., radioactive, inorganic).

In the NODC version of CAS code file, isomers of a compound are listed in addition to the nonisomeric or generic name for a substance. These generic names are used to identify measurements of the sum or total concentration of a substance (e.g., sum of all tetramethyl benzenes) or the total concentration of breakdown or altered products of a substance (e.g., sum of DDD, DDE, and DDT is expressed as DDT).

This list currently contains the names and codes of 516 chemical substances, including those identified by the Environmental Protection Agency as being of priority concern, those of interest to NOAA's National Status and Trends Program plus other substances reported to the NODC from various projects.

A second list of over 1,700 synonyms under which a chemical can be identified is also maintained by NODC. This list, derived from information in the Chemical Abstracts Service file, contains the more commonly used chemical and commercial names of compounds.

A third list of primary codes has also been prepared for computer program use.

Format -

The NODC Chemistry Code lists are available as hard copy printouts, on magnetic tape, or on floppy disk.

10.0 DATA PROCESSING AND QUALITY CONTROL

NODC receives and accessions appropriate data and information that describe the physical, chemical, and biological characteristics of the world ocean, including coastal and estuarine waters. Data contributors are primarily various departments of the U.S. Federal government, including the Department of Defense (U.S. Navy), research institutions and universities, state and private marine research laboratories, foreign agencies and institutions, and international organizations. NODC also receives data collected by private businesses and companies, mainly those working under contract to the U.S. Federal government.

NODC prefers to receive data in fully processed form on digital magnetic tapes whose characteristics are compatible with NODC computer systems. Magnetic tapes must conform to applicable Federal Information Processing (FIP) standards as well as non-conflicting applicable standards of the American National Standards Institute (ANSI). Small amounts of data may be received as printed data reports or other hard copy forms. For example, marine institutions in developing countries, which may not have computer facilities, sometimes submit oceanographic station (Nansen cast) data to NODC on manual coding forms. These data must be converted to digital form, however, before they can be processed.

10.1 Data Processing Systems

Data flows into NODC's data files through three processing systems:

1. Oceanographic Station Data System. The data processed through this system consist of measurements of ocean temperature, salinity, oxygen, and "nutrient chemistry," that is, concentrations of ionic species such as phosphate, nitrate, and silicate. These measurements may have been taken by means of either water sampling bottles (typically Nansen casts) or the newer electronic C/STD (conductivity/ salinity-temperature-depth) recorders. Nansen and other bottle cast observations are made at fairly widely-spaced depth levels, with depth interval increasing in the deeper, less variable water layers. CTD and STD instruments are continuous profiling devices from which data are normally recorded at closely spaced depth intervals. NODC refers to C/STD data as "high resolution" if the depth interval is finer than 5 m. These data are referred to as "low resolution" if they are recorded at depths equivalent to Nansen casts or if the depth interval is 5 m or greater. Only low-resolution C/STD data are processed through this system. These data include stations reported to NODC at Nansen-equivalent depths and the "compressed" C/STD stations created by picking off data at selected observed depths from all the high-resolution C/STD data processed through NODC's MULDARS processing procedures. These data are then processed through this system and stored in a format compatible with Nansen cast data.

2. Bathythermograph Data System. Temperature-depth profile data from both mechanical bathythermographs (MBTs) and expendable bathythermographs (XBTs) are processed through this system. NODC no longer digitizes MBT data from the original temperature-depth traces, but still accepts for processing and archiving historical MBT data that have already been converted to digital form. Analog temperature-depth strip charts from XBT recorders are digitized by NODC both in-house and through use of outside contractors. In recent years NODC has digitized in-house about half of the XBT data that it processes and archives. NODC's in-house digitization capability is also used to monitor work performed by contractors.

3. Multidisciplinary Data Archival and Retrieval System (MULDARS). A wide variety of physical, chemical, and biological data is processed through this system. Data are recorded, processed, and archived in fixed-field digital formats. Among these types of data are: high resolution C/STD data; current meter time series data; data from automated ocean buoys; data on marine pollutants and toxic substances; and data on plankton, fishes, marine mammals and birds, and other marine organisms. The key to this system is an automated data dictionary that contains a complete description of all MULDARS files. For each file the dictionary contains complete layouts of all records, including the starting position and length of each field. It also indicates whether a field is mandatory and whether data in a field must be within a given range of values.

10.2 Data Processing Cycle

NODC data processing procedures encompass five principal steps: acquisition, preparation, quality control, quality assurance, and data completion. Although the detailed operations required to complete these steps vary among NODC's three data processing systems, the same general functions are performed:

- **Acquisition**. Data submitted to NODC are reviewed to ensure that they are accurately described by accompanying documentation, to characterize the data type, and to determine if it is suitable for processing. If the data are processable, but not in an NODC format, conversion will be required. If the data are of a type not normally received by NODC, the Data Administrator may be called upon to decide if the data should be accepted. The data are assigned acquisition numbers and track/ reference/buoy numbers that are recorded in the NODC Data Inventory Data Base. For data that subsequently enter the processing cycle, this information is updated at stages along the way so the data can be tracked and located.

- **Preparation.** If data are submitted in digital form, working copies of the magnetic tapes or floppy disks are made and the originals stored in the NODC Library during processing. Data in report or publication form that have been determined to be processable are scanned or keyentered and put on magnetic tape. XBT analog strip charts are prescreened for obvious errors or omissions and then digitized for entry into the XBT production file. At completion of the data preparation phase, data are stored on disk in a production file awaiting processing through the appropriate sequence of computer programs.

- **Quality Control.** Data collectors are responsible for the scientific validity of data submitted to NODC. NODC quality control procedures, which involve review by NODC data processing personnel of output from computer programs, can detect straight-forward coding errors and may indicate suspect data, but can provide no absolute check on data accuracy. Quality control programs check for completion of mandatory fields, proper agreement between related fields in a data record or between records, expected ranges for data fields, and similar items. Data processed through the oceanographic station data system and bathythermograph data system are also compared to environmental models derived from the master data files to see how new data compare to climatic norms. Further details about quality control procedures are presented later in this section.

- **Quality Assurance.** Quality control results for all oceanographic station data and a random, representative sample (15-20 percent) of bathythermograph data are further reviewed by a quality control reviewer. This individual checks the work of monitors and technicians to ensure that processed data meet the highest standards available from the system and to assess personnel performance.

- **Data Completion.** After a data set has passed through all previous stages in the data processing cycle, it is ready to be merged with data of the same type. All error listings, error correction forms, and other related materials are filed in the data processing folder that has accompanied the data set from its entry into processing. Each week data sets that are completely processed are collected on disk files segregated by data type. Each month the weekly finals are written to magnetic tape. The data are then merged into NODC's data files where they are available for dissemination to users.

10.3 Data Quality Control and Quality Assurance

Because they form such an important part of the data processing cycle, NODC's data quality control and quality assurance procedures are described in greater detail here. These procedures combine automated checking of data records and human review and inspection of both the incoming data and output from the quality control computer programs. The procedures for the three data processing systems are as follows:

- **Oceanographic Station Data.** Each data set processed through the oceanographic station data system consists of a number of stations (normally from a single cruise) at which measured parameters (e.g., temperature, salinity) are recorded at a series of fairly widely spaced depth levels. The relative constancy of water mass characteristics of the deep oceans provides the primary standard for quality checking new observations. Salinity and temperature inconsistencies within a cruise or sudden changes from one station to the next may indicate possible problems.

As in other NODC data processing systems, oceanographic station data is checked for quality by a data processing monitor who reviews and evaluates results of computerized quality control programs. For each data set being processed, the software for the oceanographic station data system generates a comprehensive listing that includes two types of data quality information:

1. Logic and consistency tests, which check both the cruise and station identifier information (master record) and the water column measurements (detail records) for conditions that include:

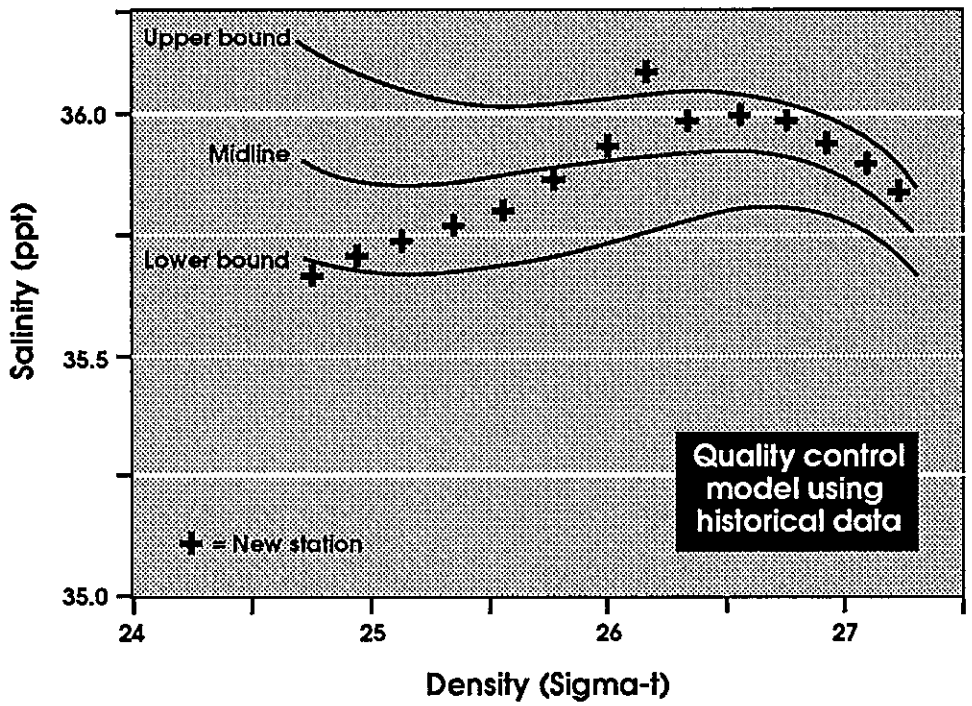
- valid ship speed between stations,
- valid ranges or expected upper limits for parameter values,
- consistency between related data fields,
- stations with reported locations that fall on land, and
- vertical stability (any sigma-t decrease with depth greater than 0.02 is flagged).

Two types of error flags are set to indicate possible errors, nonfatal and fatal. Non-fatal error flags (e.g., parameter values out of expected ranges) alert the data processing monitor to investigate further. Fatal error flags (e.g., impossible parameter values such as latitude greater than 90°) require some corrective action.

2. Water mass model comparison, which checks each new station against salinity-density models derived from historical data in the NODC oceanographic station data file (Fig. 10.3-1). NODC generated the models for each five-degree square of ocean for which sufficient data were available (10 or more valid stations). Using all valid (non-questionable) data greater than or equal to 100 m in depth, NODC compiled bivariate frequency distributions of salinity versus density (sigma-t). From these were derived the midline and envelope (upper and lower bound) models that define expected values and ranges of salinity as a function of density. In the oceanographic station data quality control printout, a station is listed with values of the devia-

tion of observed salinity from the model midline and upper and lower envelope values. As a guide to the validity of the model, the number of observations from which the model was derived is also listed. Large changes in the salinity deviation from one point to the next or values that fall outside the envelope indicate that data may be in error. Suspect data values are then closely scrutinized.

Figure 10.3-1 Ocean Data Quality Control Model



If the data processing monitor determines from all available evidence that certain data values are indeed questionable, indicator flags are set to designate them as such. These flags become part of the permanent archival data record and appear in all copies of data provided to users. If data from entire stations or cruises are found to be questionable or erroneous, they are removed from further processing and not incorporated into the data file.

- **Bathythermograph Data.** NODC receives bathythermograph data in both analog (strip chart) and digital form. Before they are digitized, XBT strip charts are prescreened to ensure that the observation was taken correctly and that all required information has been annotated on the trace or in accompanying log sheets. An observation will be rejected for digitization for: missing latitude or longitude; missing or questionable month and year; improper calibration mark; trace that does not start at or near the surface; trace that is too faint or with extraneous markings. After digitization the data are converted to NODC's UBT (Universal Bathythermograph) processing and storage format and are ready for further quality control along with data received in digital form.

Digital bathythermograph data is subjected to two computerized quality control programs:

1. General Internal Logic Test (GILT), which checks for:

- valid speed, time, and distance between observations,
- acceptable ship speed of advance for the model of probe used,
- valid ranges for data fields,
- consistency between related data fields, and
- valid calibration temperature and depth.

2. Environmental Quality Control (EQC), in which each observation is compared to historical averages of data in NODC's archives for the same month and one-degree square. This program compares five traits of a temperature depth profile to historical averages of those traits. Like the quality control of oceanographic station data, this procedure uses environmental quality control models derived from data already in the archive files. The traits are:

- surface temperature,
- depth of significant gradient (depth of the top of the gradient segment with the largest continuous temperature change in which the negative gradient equals or exceeds 0.03°C/m,
- magnitude of gradient as defined above,
- depths of three specified isotherms (which vary depending on region), and
- positive gradient (depth of the top of the first positive gradient).

Errors or discrepancies detected by review of output from these programs will result in edits of the data or possible redigitization of the original trace.

● **Multidisciplinary Data Archival and Retrieval System (MULDARS).** The many types of environmental assessment data processed through this system undergo automated quality control by means of two computer programs:

1. Program MULCHEK

- compares data records to the data dictionary to ensure that fields contain proper data types and that all data fields are in the proper position
- checks that data values occur within acceptable ranges, and
- verifies that all codes used to record data (except for taxonomic and chemical compound codes) are valid.

2. Program STATAX

- checks that all taxonomic codes and chemistry codes are valid, and
- checks for duplicate station numbers.

10.4 Data Storage

Most of the National Oceanographic Data Center's digital data files are stored on magnetic tape. The data tapes are held at the Asheville, N.C., site of the NESDIS Data Archive Management and User Services (DAMUS) central computer. The NODC has also begun to store data on WORM (write once, read many) optical disks. It is espected that this process of migrating data to more compact and easily accessible media will accelerate over the next few years.

The structure of NODC's data files depends on the type of data they hold. Environmental assessment data in the MULDARS files are sorted by file number, NODC cruise (track) number, and station number. Data in each of the oceanographic station (Nansen cast) data, bathythermograph data, and low resolution C/STD data files are stored on two separate sets of tapes. One set (referred to as the "cruise file") is sorted by NODC cruise number; the other set (referred to as the "geofile") is sorted by WMO geographic square number.

At the end of each month, data whose processing has been completed that month are copied to magnetic tape and sent to the Asheville DAMUS site for final inventorying and storage. This process is carried out as follows:

1. MULDARS data are separated by file and run through final inventory programs, one for time series and another for non-time series data. These programs extract station level inventory information to be added to the NODC Data Inventory Data Base (DINDB). This information includes station number, date, month, latitude, longitude, and, if recorded, maximum depth, taxonomic code (first six digits, to family level), and CAS chemistry codes. In addition, DINDB is updated with the precise count of processed stations and records. The data are then merged into the appropriate file and a new archive tape created. After backup copies of the new tape are created, a program is run to list a summary of the data now held in each file. Finally, an archive date is added to DINDB and the data are considered formally archived and available for dissemination.

2. Oceanographic station (Nansen Cast) data, bathythermograph data, and low resolution C/STD data files are updated by programs that create new archive tapes for both the cruise-sorted and geographic-sorted versions of the files. The cruise file preparation program determines which tape segments of the cruise file are affected and creates a transaction file of additions. This file of additions is then passed to both the cruise file and geofile update programs. The cruise file update program take the monthly additions, merges them with the appropriate archive tape segment, and creates a new archive tape. At this time, an audit file of the tape segments and a transaction file of station level inventory information are also created. The inventory file is applied to update the Data Inventory Data Base. The geographic update program merges the monthly additions and creates new archive tapes and a new audit file. Backup copies of the new tapes are created and the date of this final action recorded in the DINDB. These data are then considered completely processed and ready for dissemination.

It should be noted that when erroneous data are detected in any of the NODC data files, the file update procedures can also be used to delete those records from the file. If the data cannot be corrected, they are permanently deleted from the file. If the data can be corrected, they are re-entered into the processing cycle and eventually restored to the files.

11.0 SUBMITTING DATA TO NODC

The U.S. National Oceanographic Data Center acquires data on the physical, chemical, and biological characteristics of the world ocean. NODC accepts such data extending landward to the coastal limits of tidal influence in estuaries and rivers. NODC's primary area of interest is data from the water column extending from the sea surface to the sea floor. Air-sea and bottom interface data are accepted when directly related to water column or biological measurements. Other such data related to marine meteorology or to marine geology and geophysics are archived respectively by the NODC's sister centers, the National Climatic Data Center (NCDC), Asheville, N.C., and the National Geophysical Data Center (NGDC), Boulder, Colo. NODC does not acquire or hold sea ice data. These data are archived by the National Snow and Ice Data Center (NSIDC), which is operated for the NGDC by the University of Colorado, Boulder, Colo.

NODC accepts two basic types of ocean data:

1. *Measured or observed data* — values of parameters that are attributes of the marine environment. Examples of such parameters include temperature, salinity, current direction and speed, wave height, hydrocarbon concentration, primary productivity, and concentration and distribution of phytoplankton. Appropriate types of data received in or convertible to NODC standard formats are processed by NODC and merged into its Master Data Files. Data sets for which this is not possible or appropriate are stored in their original formats as Originator Data Sets and provided to users as direct data set copies.

2. *Data products* — data sets derived from measured or observed data by subjecting them to special editing, analysis, or synthesis procedures to generate products such as gridded or contoured parameter fields. These data are not processed by NODC; they are stored in their original formats and provided to users as direct data set copies.

NODC does not accept or store data generated by laboratory or *in situ* experiments conducted under controlled environmental conditions. NODC does not accept or hold classified data or proprietary data. Investigators are encouraged to submit quality controlled data.

Physical Oceanographic Data

NODC concentrates on acquiring those types of physical data of value to a broad spectrum of secondary users. Generally this includes the following:

1. *Water temperature* -- obtained by expendable bathythermographs (XBTs), water bottle reversing thermometers, CTD/STD instruments, moored or towed thermistors, and remote sensors on earth satellites.

2. *Water conductivity or salinity* -- obtained from water bottle casts, CTD/STD instruments, or moored sensors.

3. *Ocean currents* -- from moored current meters, drifting buoys, and profiling current meters.

4. *Ocean winds and waves* -- measured from moored or drifting buoys or remotely sensed from earth satellites.

5. *Water pressure* -- measured from moored or bottom-mounted sensors.

6. *Light transmission or attenuation* -- measured from moored sensors or from sensors attached to CTD/STD instruments.

7. *Sea level data* -- directly measured by *in situ* instruments or remotely sensed from earth satellites.

The depths at which measurements are taken form an important part of NODC data files. Table 1 lists the types of depth levels at which NODC prefers to receive submitted data.

Table 11.0-1 Preferred Depths for Reporting Data to NODC

Data Type	Preferred Depth
Nansen, Niskin, or other water bottle data	Observed depths
Digital XBT data	Profile inflection points
Moored current meter data	Instrument depths
CTD/STD and profiling current meter data	High resolution depths: 1-3 decibar intervals

NODC does not accept data from untested instrumentation that has not been evaluated or calibrated; raw data not reduced to geophysical units; marine meteorological data other than surface winds and waves unless they are related to water column measurements; or sea ice data.

Chemical Oceanographic Data

NODC acquires digital data on naturally-occurring and man-made chemical substances in the ocean. These data may include geographic and temporal distributions of chemical concentrations in the water column, in marine biota, and in interstitial waters of marine sediments. Principal substances of interest include:

1. *Dissolved gases* -- oxygen, carbon dioxide.

2. *pH, alkalinity.*

3. *Nutrients* -- nitrogen (nitrate, nitrite, ammonia).
   -- phosphorus (orthophosphates).
   -- silicon (silicate).

4. *Chemical and radioactive tracers* -- helium, tritium, argon, CFCs, carbon.

5. *Dissolved matter in the water column* -- lipids, carbohydrates, organic nitrogen compounds, vitamins, hydrocarbons (biosynthetic, geochemical, and anthropogenic origin), sterols, DIC, DOC.

6. *Particulate matter in the water column* -- PIC, POC.

7. *Trace metals in the water column.*

Chemical pollutants are included in several of these classes of substances. Because of the emphasis given to marine pollution studies, however, the following more detailed list highlights the principal kinds of marine pollution data acquired by NODC:

1. *Biochemical oxygen demand (BOD) measurements.*

2. *Organochlorine pesticides.*

3. *Organophosphorus insecticides.*

4. *Polychlorinated biphenyls (PCBs).*

5. *Heavy metals.*

6. *Particulate pollutants* such as dredged spoil, acid iron waste, coal wastes, and inorganic fine particles (e.g., china clay).

NODC encourages the use of its File 069 (Marine Chemistry) and File 144 (Marine Pollutants and Toxic Substances Data File) formats as exchange formats for chemical data. In NODC File 144 toxic and pollutant substances are identified and coded using NODC's modification of the Chemical Abstracts Service (CAS) registry numbers. By prior arrangement with the NODC, investigators may also submit data on substances not listed in the CAS files.

Biological Oceanographic Data

NODC is especially interested in data on the geographic and temporal distribution of all groups of marine biota, their standing crop measurements, and other fields contained in NODC's standard biological data formats. Specifically, NODC receives and holds data on:

1. *Primary organic production (rate of radiocarbon assimilation).*

2. *Concentrations of chlorophylls, carotenes, and phaeophytin in phytoplankton.*

3. *Phytoplankton concentrations, distribution, and biomass.*

4. *Zooplankton concentrations, distribution, and biomass.*

5. *Benthos concentrations, distribution, and biomass.*

6. *Nekton distribution.*

Except when required by special NOAA program interest, NODC does not acquire data related to: diagnostic taxonomic characteristics; embryology and development; biochemistry, cytology, physiology, and genetics; ethology; trophic dynamics; or fisheries catch and marketing statistics.

Marine Geological Data

Data on substrata characteristics are acquired and archived by NODC only when they are included as habitat descriptors of benthic populations or as part of water column related studies. Marine geology and geophysics data—including data on marine sediments, bathymetry, gravity, magnetism, and heat flow—are held by the National Geophysical Data Center.

Data Quality Control and Documentation

A reasonable amount of data quality control may be performed by NODC. Quality assurance of data, however, is primarily the responsibility of the data donor. Data submitted to NODC should represent the originator's best values for parameters being measured. Raw data should be reduced to geophysical values of sufficient quality to be useful to others. In some cases NODC may reformat data to meet its processing requirements.

All data acquired must be accompanied by suitable documentation, either the NODC Data Documentation Form (NOAA Form 24-13) or an acceptable equivalent. It is especially important that data collected during unusual or anomalous conditions be noted as such. This information may be necessary for proper interpretation of the data during processing by NODC and during use by NODC customers. When necessary to meet user needs, NODC provides copies of documentation along with specific requested data sets.

Accepted Media and Formats

NODC prefers to receive data in fully processed form transcribed onto digital magnetic tapes whose physical characteristics and encoded language are compatible with NODC computer systems (see Table 2). Magnetic tape specifications must conform to applicable Federal Information Processing (FIP) Standards, as well as non-conflicting standards of the American National Standards Institute (ANSI).

NODC also accepts data recorded on cassettes meeting NODC requirements and on 5.25-inch, MS-DOS compatible diskettes. By prior agreement, NODC can in special cases accept data on coded forms. NODC does not normally seek hard copy data, except for internal reference material. Oceanographic data reports and publications are usually of interest to NODC only in data-sparse ocean areas where they may serve to augment NODC's digital data bases.

The advent of computer networking systems now also makes it possible for NODC to receive and transmit small data sets electronically. NODC is linked to NASA's NSI-DECnet and the NSFnet (Internet). Investigators may use these systems to communicate with the NODC.

Except for expendable bathythermograph (XBT) strip charts (which are subsequently digitized), NODC does not accept data in analog form. This includes chromatograms, sonograms, CTD/STD traces, bathythermograph photographs, electrophoretic strips, or other forms of raw data.

NODC strongly prefers to receive data in one of its own formats. If data are submitted in other formats, the necessary conversion process will delay the time before the data can be inventoried, included in the data files, and made available to users. Record layouts of NODC data formats are included in the *NODC Users Guide*. Copies of selected NODC formats, as well as NODC code tables used with them, can be provided to researchers on request.

Table 11.0-2 Magnetic Tape Specifications for Submitting Data to NODC

Tape Attributes	Specification
Reel Size:	1/2 inch; up to 2400 feet in length
Track:	9
Density :	800, 1600, or 6250 bpi
Parity:	Odd
Character Code:	ASCII or EBCDIC
Internal Label:	ANSI Standard or non-labeled
Physical Record Type:	Fixed or variable length
Maximum Logical Record Length:	32,000 characters
Maximum Physical Block Size:	32,000 characters
Blocking Type:	Fixed, variable, or variable block segmented
External Label/External ID Number:	Any

Unusual Data Submissions

If an investigator wishes to submit data of a type, on a medium, or in a format not normally accepted by NODC, prior arrangements should be made with the Data Acquisition and Management Branch. Within the limits imposed by available resources and its mission state-

ment, NODC will accomodate data of special interest. If the data warrant such action, NODC may add new capabilities to handle them.

Contact Points

Inquiries about submitting data to NODC should be addressed to any of the NODC Liaison Offices (see Table 3.1-1) or to:

Chief, Data Acquisition and Management Branch
National Oceanographic Data Center
NOAA
Washington, DC 20235

Telephone: 202-673-5643 (commercial) or FTS 673-5643
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

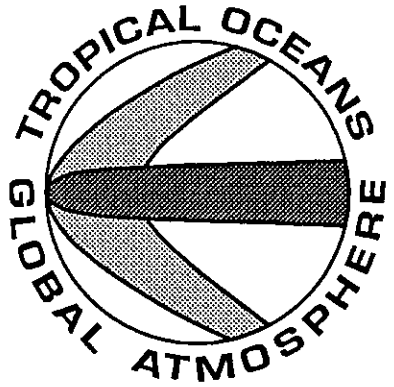
12.0 DATA MANAGEMENT SERVICES

Over the years the National Oceanographic Data Center has worked with program planners, managers, and principal investigators to coordinate data management support for major ocean science research efforts. The NODC has allocated personnel and resources and adjusted its operations and procedures to help meet specific program needs and goals. Among the largest and most significant of past programs for which the NODC provided such support services were the International Decade of Ocean Exploration (IDOE) Program of the National Science Foundation; the Alaskan Outer Continental Shelf Environmental Assessment Program (OCSEAP) of the Department of Interior; and the Marine Ecosystems Analysis (MESA) Program conducted by the National Oceanic and Atmospheric Administration.

Data Management for Global Ocean Research Programs

To improve data management services for new global ocean programs , the NODC has strengthened its ties to the ocean research community. As ocean research programs have grown larger and more complex, data management needs have also increased. These programs require distributed data management systems in which the NODC shares data management responsibilities with many other organizations and institutions in the United States and around the world. For at least the next decade, the NODC will participate in three major programs that will largely direct the course of global ocean research:

- **Tropical Ocean-Global Atmosphere (TOGA) Program.** Known formally as the Study of Interannual Variability of the Tropical Oceans and Global Atmosphere, TOGA is a decade-long research program with field measurement, assessment, and modelling components. The NODC's primary role in TOGA is to help in assembling and quality controlling upper ocean thermal data and sea level data. Global ocean altimetry data and derived global wind/wave data sets from the U.S. Navy GEOSAT that are of interest to many TOGA researchers are also archived and distributed by the NODC.



- **World Ocean Circulation Experiment (WOCE).** NODC representatives on the U.S. WOCE Data Management Working Group are helping plan and coordinate this long-term study of ocean dynamics. The NODC anticipates working with various WOCE Data Assembly Centers in the task of data processing, quality control, archiving, and distribution. Because they will help augment its existing data holdings, WOCE hydrographic station data, current meter data, and subsurface float data are of special interest to the NODC.

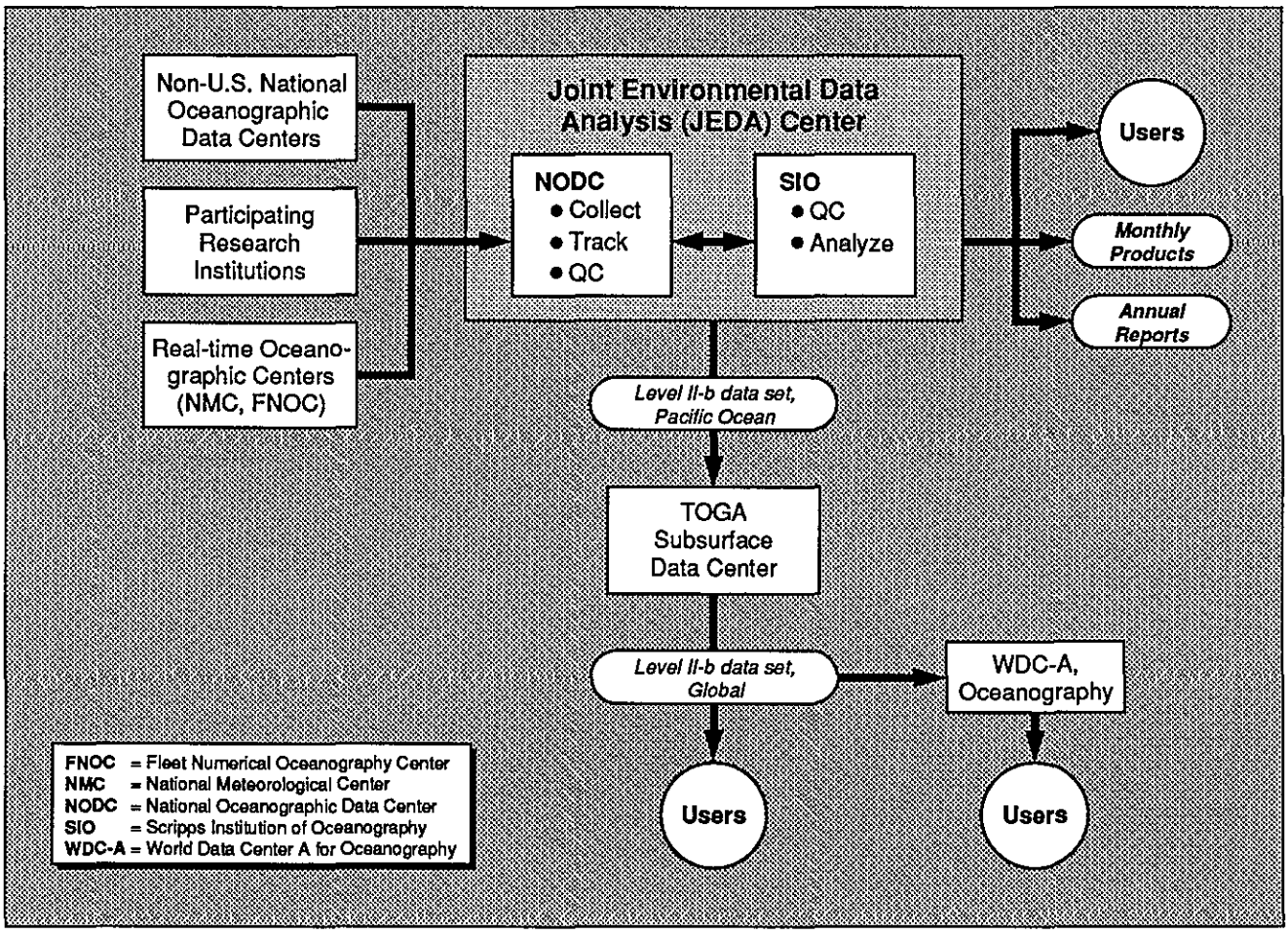
● **Joint Global Ocean Flux Study (JGOFS).** NODC's Northeast Liaison Officer stationed at the Woods Hole Oceanographic Institution is the U.S. data coordinator for the Joint Global Ocean Flux Study. A personal computer-based data tracking system is in place, and data are being quality-controlled through comparison to historical climatology. A flexible data submission format has been agreed on and data are being exchanged in either spreasheet or flat ASCII file format.

Joint Centers with Academia

To foster closer working relations between research scientists and data managers, the NODC has established joint centers with academic institutions. These collaborative efforts provide a mechanism for improving the quality, quantity, diversity, and availabbility of ocean data for global climate change research. As of early 1991, three such centers had been created:

● **Joint Environmental Data Analysis (JEDA) Center.** The JEDA Center was established at the Scripps Institution of Oceanography (SIO) of the University of California at San Diego in late 1985. Its goal is to increase the quantity and improve the quality and timeliness of upper ocean thermal data available for TOGA and WOCE researchers. From its initial

Figure 11.0-1 TOGA Thermal data Flow



focus on the tropical Pacific, JEDA expanded its region of interest to cover the entire Indo-Pacific area and will eventually provide global coverage. The NODC acquires, reformats, merges, and initiates quality control of near-real-time and delayed mode data. Monthly data are transmited over a computer network to SIO which performs scientific data quality checks and prepares bimonthly analysis products. Annually the final quality controlled data set is transferred to the TOGA Subsurface Data Center.

- **Joint Archive for Sea Level (JASL).** The Joint Archive for Sea Level was created by the NODC and the TOGA Sea Level Center at the University of Hawaii to coordinate the acquisition, processing, archiving, and dissemination of sea level data collected by an international network of tide gauge stations. An NODC representative on-site in Hawaii assists in data processing and quality control and preparation of data products and reports. As of early 1991 the JASL permanent archive at the NODC contained hourly, daily, and monthly sea level data from 94 stations in the Pacific Ocean and 40 stations in the Indian Ocean

- **Joint Center for the Management of Ocean Data (JCRMOD).** The Joint Center for the Management of Ocean Data was created to address one of the major challenges of global climate research: how to cope with and effectively use the huge quantities of data that will flow from new observing systems and ocean-sensing satellites. It formalizes long-standing working ties between the NODC and the College of Marine Studies (CMS) of the University of Delaware and is based at the CMS facility in Lewes. The Center will promote studies into methods, systems, and technology for ocean data management. Among research topics of interest to JCRMOD are : evaluating and improving the quality of historical data sets; developing improved user interfaces to historical data archives and exploring new procedures for locating, searching, browsing, and obtaining data sets; and applying computer networks to create distributed data systems that will better meet the needs of the ocean community.

NODC Data Management Functions

The specific functions performed by NODC to implement a data management agreement include:

Data management planning. NODC representatives sit on many of the national and international panels and committees that plan and organize ocean research programs. They serve to bring the data management perspective to these groups and assist in defining the data management elements within program plans. The data management elements define responsibilities of program management, principal investigators, and the NODC, regarding the collection, submission, processing, storage, and dissemination of program data.

Development of data exchange formats. Through its support for previous ocean data collection programs, the NODC has experience in developing formats for recording and storing digital oceanographic data. Such formats are created in collaboration with and to meet the needs of program managers, principal investigators, and the NODC. Existing NODC formats and their accessory codes can be provided for use in new projects. If required to meet special data needs, these formats can be expanded, or completely new formats developed. To avoid needless proliferation of data formats, however, NODC has moved toward use of formats that are flexible enough to be adapted to broad classes of data.

Data tracking. NODC can assist project management by monitoring submission of data by prinicpal investigators and tracking individual sets as they move through the processing cycle from originator to final storage. By means of its automated support systems, NODC can provide status reports on data submission and processing.

Data processing, quality control, and archiving. This is NODC's principal function. Data that enter NODC's data files are quality controlled and stored in standard formats. Therefore, data collected over long time periods by many different investigators are compatible and amenable to computer manipulation. They are then also available for comparison to historical data in NODC's global data bank.

Provision of data products. Over the years the NODC has developed its own software and adapted commercial software packages to generate useful products from data in its master files. After data have been final processed and merged into the appropriate file, data originators and secondary users may choose from a suite of applications products that display or summarize selected data.

Production of data catalogs. On request, NODC will prepare data catalogs and inventories documenting the results of special projects. Besides providing managers and investigators with a useful tool, these reports have special value in that they are often the only presentation of a project's accomplishments that can be easily appreciated by a non-technical audience.

Contact Point

Inquiries about NODC's data management services may be directed to any of the NODC Liaison Offices or to:

Chief, Data Acquisition and Management Branch
National Oceanographic Data Center
NOAA/NESDIS E/OC11
Washington, DC 20235

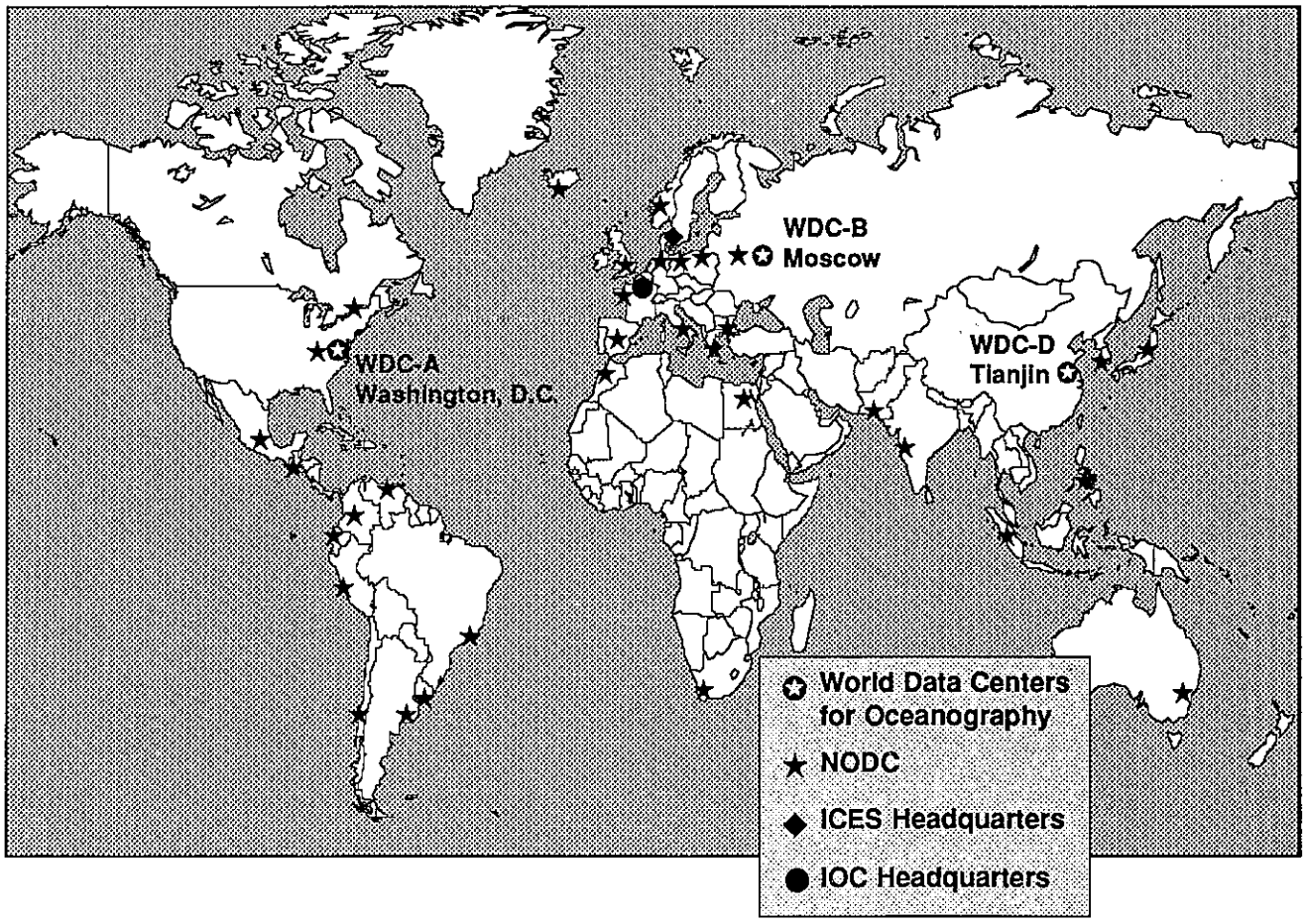
Telephone: 202-673-5643 (commercial) or FTS 673-5643
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

13.0 INTERNATIONAL COOPERATION AND DATA EXCHANGE

NODC supports a number of international data exchange activities that help it fulfill its mission. Participation in these activities promotes data exchange and enables NODC to augment its data archives with valuable foreign data taken worldwide. NODC's interactions with international organizations and foreign data centers also enhance its scientific and technical capabilities. When it was established in 1960, the U.S. NODC was the world's first national oceanographic data center. Today it is a member of a network of over 30 NODCs in countries around the globe (Fig. 13.0-1)

NODC serves as the U.S. focal point for data exchange activities conducted within the purview of the Committee on International Oceanographic Data Exchange (IODE) of UNESCO'S Intergovernmental Oceanographic Commission (IOC). Bilateral exchanges, in which NODC enters into an agreement to exchange data directly with a data center or similar organization in another country, often result in the addition of valuable data sets to NODC's archives, while providing much needed data from NODC's data bases for the cooperating organization's area of interest.

Figure 13.0-1 International Oceanographic Data Exchange Network



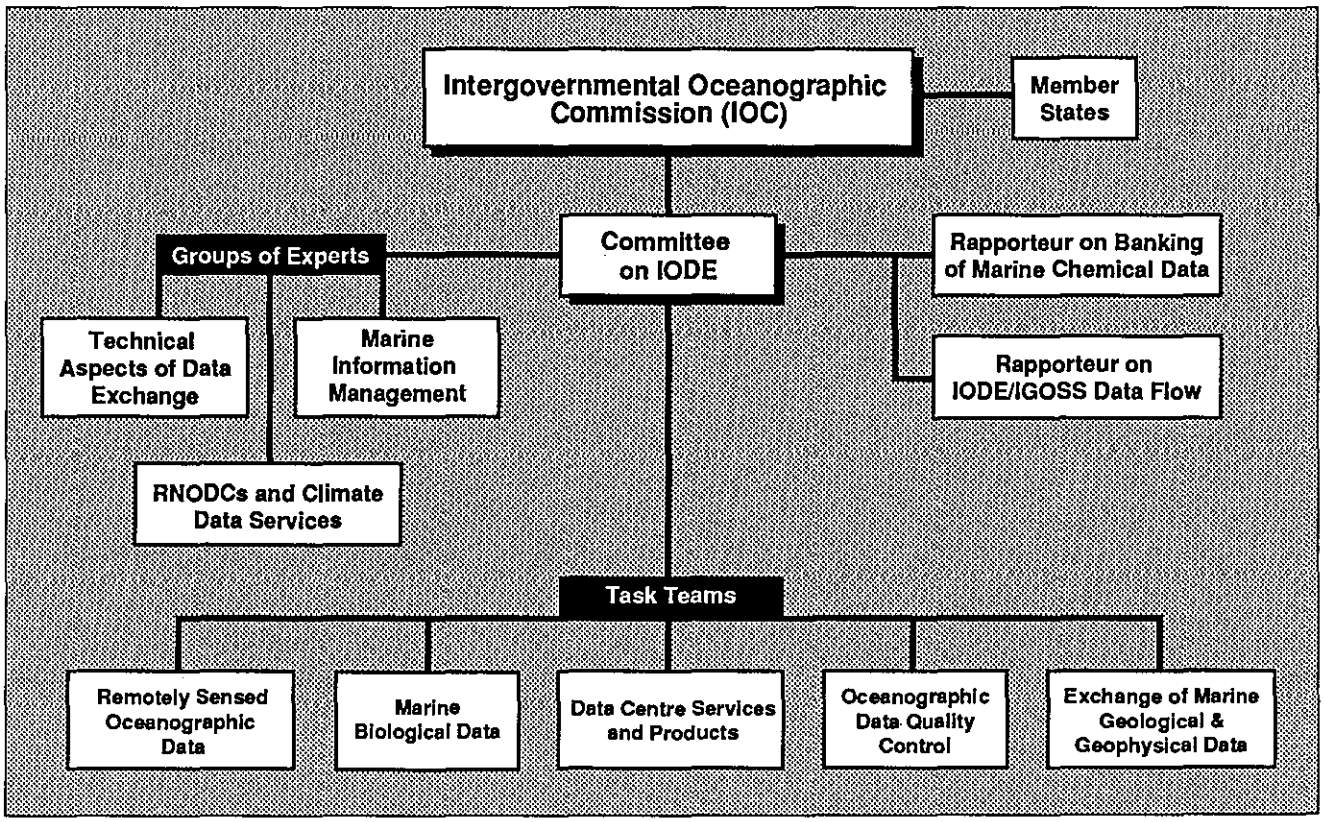
The NODC Director normally serves as the U.S. National Coordinator for International Oceanographic Data Exchange. In this capacity, he is the focal point for U.S. participation in IODE Sessions and other data exchange meetings, as well as for coordination of U.S. data exchange policy. NODC is also active in developing U.S. data management/data exchange policy through its participation in the Department of State's Panel for International Programs and Intergovernmental Cooperation in Ocean Affairs (PIPICO).

NODC-IOC Cooperation

The IOC, through its Committee on IODE (Fig. 13.0-2), encourages the adoption of those practices intended to facilitate the exchange of data and information internationally. Some of the more important accomplishments of IODE have been: (1) standardizing forms for reporting and coding data; (2) assisting in development of national oceanographic data centers; (3) adopting the automated General Format 3 (GF-3) for international exchange of marine scientific data and; (4) providing the mechanism for creation of Responsible National Oceanographic Data Centers (RNODC's). The Committee usually meets biennially to review and reappraise the entire international marine data and information exchange system. Task teams, groups of experts, and rapporteurs usually conduct their business during the intersessional period, frequently by correspondence.

RNODC's assist the three World Data Centers for Oceanography in data processing, data validation, and data reformatting to meet user needs, and in preparing products such as data

Figure 13.0-2 Structure of the IOC Committee on International Oceanographic Data Exchange



summaries, inventories, and displays. RNODC's also assist NODC's and Designated National Agencies, as well as IOC Member States having few or no data processing facilities. In addition, they serve as Regional Data Centers, project data centers, or as archiving and inventory centers for specialized data. Regional or project data centers are national centers that voluntarily make their computer facilities available for a limited period and perform data processing and analysis services in support of specific international cooperative research investigations or projects.

NODC currently functions as an RNODC in support of the Integrated Global Ocean Services System (RNODC/IGOSS). IGOSS is a worldwide ocean services program, jointly sponsored by the IOC and WMO (World Meteorological Organization). The purpose of IGOSS is to promote, develop, and coordinate an international system that enhances the timely global acquisition and exchange of ocean data and the dissemination of oceanographic products and services to the scientific community. Observations, analyses, and predictions of ocean phenomena are available to users. NODC, serving as the U.S. RNODC/IGOSS collects near real-time subsurface temperature message data. The RNODC/IGOSS has been a leader in merging non-real-time data with IGOSS data in order to provide users with the highest quality data set possible. Data from the IGOSS archive are increasingly being used to support international global climate research programs.

At its Thirteenth Session (January 1990), the Committee on IODE recognized the need for change in IODE's traditional role to reflect new requirements such as: (1) the modernization of the IODE system required for support to global climate research and monitoring programs; (2) promotion of IODE data and information management practices that respond to scientists' requirements for the rapidly updated, quality-controlled data bases needed to support global research programs; (3) the increased use of personal computers in effective data and information management practices; (4) the development of standardized microcomputer software packages for oceanographic data and information management to assist developing countries; and (5) the desirability of improved operational collaboration between IODE and IGOSS in the continuous management and updating of global data bases with both real-time and delayed-mode data.

International Data and Information Management and Exchange

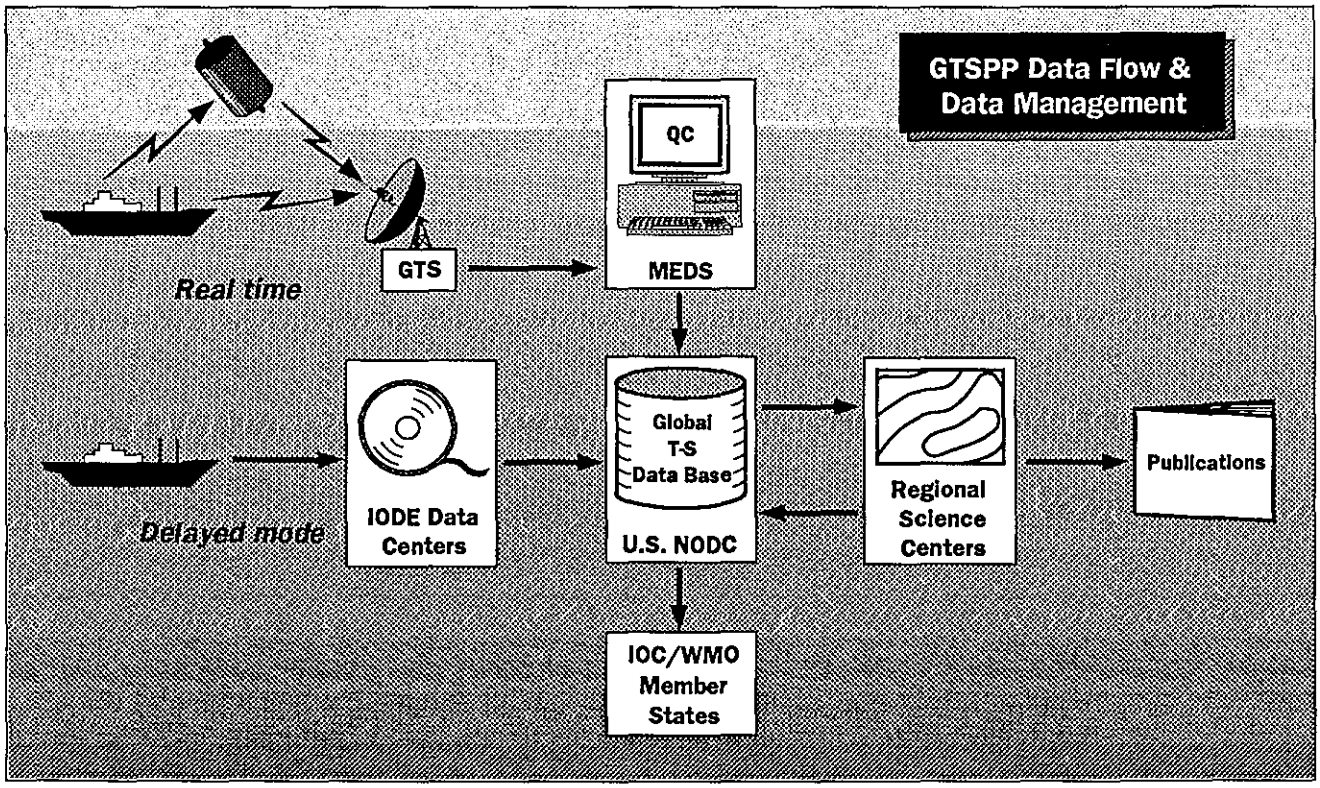
NODC's involvement in a number of international data exchange programs and data management activities promotes the effective and systematic exchange of data in the marine scientific community and substantially augments NODC's data bases required for climate research and global change programs.

Bilateral Agreements. In order to enhance the exchange of data internationally, NODC enters into formal or informal agreements with its counterpart data centers or similar organizations in other countries. Such agreements serve to systematize data exchange by defining the types of data to be exchanged, the frequency with which they are to be exchanged, and the formats in which data can be accepted. These agreements frequently enable both parties to obtain valuable additional data for their respective areas of interest. NODC initiates bilateral exchanges with foreign data organizations in order to obtain data for cruises or programs of international significance or to augment its data bases by obtaining data for areas of sparse data coverage.

Joint Environmental Data Analysis (JEDA) Center. The RNODC/IGOSS data base has been used to support a joint project between the U.S. NODC and Scripps Institution of Oceanography (SIO) to manage subsurface thermal data for the TOGA tropical Pacific Ocean area through their Joint Environmental Data Analysis (JEDA) Center. The JEDA Center has now assumed responsibility for the entire Pacific Ocean, as well as other ocean areas. The joint NODC/SIO system enables both near-real-time and delayed mode data to be assimilated, quality controlled, and disseminated to TOGA scientists and other users as merged data sets and analytical data products. The JEDA Center at Scripps works closely with NODC by incorporating a series of quality control steps that include comparing data against historical models, and creating a series of monthly products for use by the TOGA scientific community. The quality controlled data set is then distributed to the TOGA Sub-Surface Data Center in Brest, France, and in turn, a copy of these data are provided to WDC-A, Oceanography in the GF-3 format.

Global Temperature -Salinity Pilot Project (GTSPP). The Global Temperature-Salinity Pilot Project (GTSPP) is now underway to promote, improve, and standardize existing temperature-salinity data management mechanisms and to enhance IGOSS/IODE support for global ocean research programs (Fig. 13.0-3). This is being accomplished through a cooperative effort to acquire as much of the available temperature-salinity data as possible from both real-time and delayed-mode data sources, assess their quality, and make them available in a timely fashion to the global change and climate research communities. Specifically, the GTSPP stresses the need to increase the participation of the oceanographic community in real-time data submissions, to acquire delayed-mode data more rapidly within data centers, and to accurately monitor and quality control all data collected. The GTSPP represents the first step

Figure 13.0-3 Global Temperature Salinity Pilot Project



toward modernization of data management practices and techniques. It is expected to provide a reliable, continuously updated, quality-controlled data base to the user community.

World Ocean Circulation Experiment (WOCE). The NODC serves as a National Data Center assisting the WOCE Upper Ocean Thermal Data Assembly Center. NODC has responsibility for collection of radio message and delayed-mode Upper Ocean Thermal (primarily XBT) and salinity data and the distribution of those data among National, Regional Science, and Global WOCE Centers in accordance with prescribed sequences and schedules. NODC has also participated with the University of Delaware in the design and implementation of an information management system for WOCE. An on-line information system (OCEANIC) at the University of Delaware provides WOCE program information to principal investigators and other researchers.

Joint Archive for Sea Level (JASL). The Joint Archive for Sea Level is a cooperative effort between the NODC and the TOGA Sea Level Center at the University of Hawaii. It was established initially to develop acquisition, processing, archiving, and dissemination procedures for data from the Pacific Ocean Sea Level Network. This network of sea level monitoring stations is being expanded to provide global sea level data sets in support of TOGA and WOCE. This work contributes to the Global Sea Level Observing System being developed under IOC auspices.

Joint Global Ocean Flux Study (JGOFS). The NODC supports this international program by operating a system designed to inventory, track, process, quality control, document, and archive JGOFS data. The system tracks the flow of data from initial collection to final archival. As this program develops, the NODC will assist in assembling quality-controlled data sets for specific JGOFS field programs. JGOFS is being planned and organized by an international committee with members from 11 countries.

NODC/ICES Cooperation. The Working Group on Marine Data Management (WG/MDM) is a subsidiary body of the Hydrography Committee of the International Council for the Exploration of the Sea (ICES), an independent, intergovernmental organization. The Working Group is generally comprised of data center representatives from most of the ICES countries. The NODC provides U.S. representation to this Working Group. The goal of the WG/MDM is to enhance the availability of marine biological, physical, chemical, and geological data relevant to ICES activities and to advise the various ICES committees on procedures for setting up data inventories, for processing and exchange of data and information, and for preparation and presentation of data information products.

Marine Environmental Data Information Referral System (MEDI). The IOC's Marine Environmental Data Information Referral System (MEDI) provides information concerning the availability and locations of the many interdisciplinary, as well as traditional, marine science data collections held by marine-oriented organizations and centers. The MEDI system provides an automated, systematic method for recording and retrieving information about marine environmental data files that exist in international centers associated with an international network. It makes possible systematic identification of what data are available worldwide on a specific topic. MEDI offers the following services: (1) a catalog and index showing details of marine data holdings of all participating centers; (2) a computerized retrieval system; and (3) specialized indexes for broad subject areas. NODC and WDC-A, Oceanography have been participants in the MEDI scheme since its inception, and have now placed the automated MEDI file on-line, using NODC's NOSIE system.

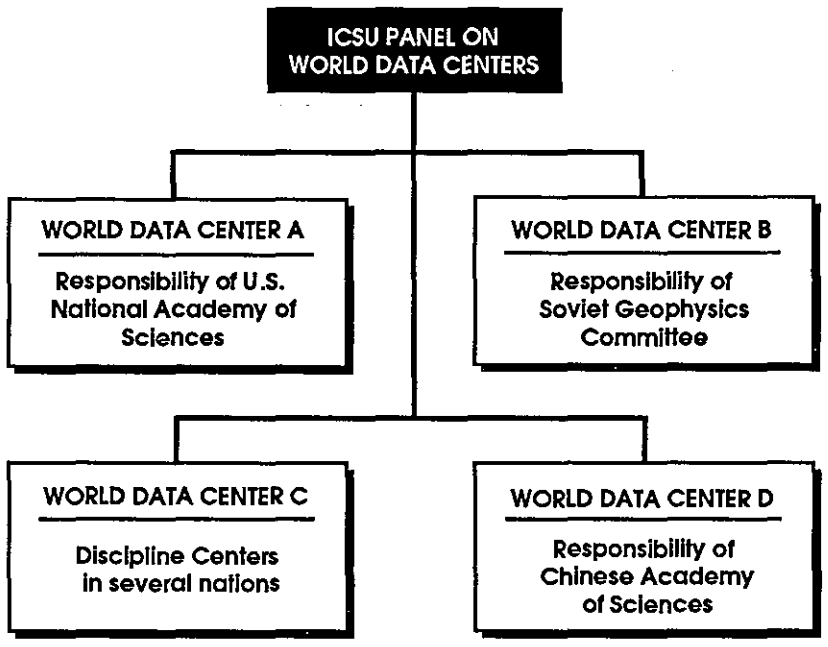
Data Management Training

Since its inception in 1960 as the world's first national oceanographic data center, the NODC has provided training to visiting personnel from foreign data centers and oceanographic institutions. Many of these trainees have subsequently served as managers and data processing staff members at emerging data centers around the world. Trainees have visited NODC under terms of its bilateral and multilateral data exchange agreements, as well as under the sponsorship of and with funding from the IOC. Training in oceanographic data handling and data processing techniques during the 1970's has largely given way in recent years to training in modern data management methods. Trainees typically spend six weeks or less at NODC, although specialized training can last up to six months. Such training by NODC has yielded positive results in the inflow of foreign data and in standardization of exchange formats.

World Data Center A, Oceanography

NODC provides facilities and support for the collocated World Data Center A (WDC-A), Oceanography, one component of a network of discipline subcenters operating under the guidance of the International Council of Scientific Unions (ICSU). In accordance with principles set forth by ICSU, WDC-A, Oceanography acquires, catalogues, and archives data, publications, and data inventory forms and makes them available to requesters in the international scientific community. WDC-A provides copies of data it receives to its counterparts World Data Center B (Moscow, USSR) and World Data Center D (Tianjin, China). Oceanographic data contributed to WDC-A become automatically available to scientific investigators in any country. Thus, there can be no restrictions or limitations placed on data exchanged

Figure 13.0-4 World Data Center (WDC) System



through the WDC system. For certain types of data, the exchange of inventories of available data in a WDC subcenter may be considered acceptable in lieu of the transfer of the actual data sets.

Exchange Policy. WDC-A, Oceanography is held responsible for the provision of materials to requesters either in exchange or at a cost not to exceed that of processing and shipping. For certain types of requests, limitations in funding, personnel, or facilities may preclude direct or free provision of data or information by WDC-A. In general, reasonably-sized requests from national or regional contributors to WDC-A, Oceanography may be considered as exchange. For requests for unusually large amounts of data, for specially formatted data, for derived data products, or for data to be obtained from outside the WDC system, WDC-A will normally be required to recover the costs of processing and shipping, or, at its discretion, may arrange for the request to be serviced by an RNODC or a regional, national, or disciplinary center.

Automation of Data. WDC-A has no facilities for automated data processing; NODC provides support to WDC-A for all required computer operations. Data submitted to WDC-A, Oceanography that are amenable to processing and incorporation into NODC's data files thus become part of NODC's global data bank.

WDC-A, Oceanography Publications. All data held by WDC-A, Oceanography are described in the *Catalogue of Data* and the *Change Notices* to the *Catalogue*. All publications received by WDC-A are listed and indexed in the *Catalogue of Accessioned Publications* and *Supplements* to the *Catalogue*. The scientific community is kept apprised of the availability of data and publications from WDC-A through regular dissemination of these catalogues to organizations and individuals in more than 75 countries, and, as appropriate, to qualified requesters.

ROSCOP. WDC-A, Oceanography maintains the Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) international marine data inventory system. (The 3rd edition of ROSCOP, entitled Cruise Summary Report, is now in use.) Data inventory forms, such as ROSCOP, enable inventory centers to determine the availability of internationally exchangeable data in advance of the actual receipt of the data and are also useful in providing a referral service to data not yet available through the WDC system.

Support to Climate Research. WDC-A, Oceanography has responded to suggestions by international organizations that it improve the level of its services and enhance its data bases and the availability of its products in support of climate research and global change programs. Automation of the Center's *Change Notices*, utilizing a personal computer-based catalogue data base, will lead to future presentation of this information on-line, as well as to a compatible WDC, Oceanography catalogue listing the joint holdings of WDC's A, B, and D. Also, WDC-A and NODC have collaborated in compiling three inventories (North Pacific, North Atlantic, and remaining oceans and seas) of ocean measurement programs (oceanographic station data and STD/CTD's) that have repetitive sampling at the same locations, worldwide, for long time periods. Each data set constitutes the basis for a new data product available on magnetic tape from WDC-A, Oceanography and NODC.

Contact Points

General inquiries about NODC participation in international activities should be directed to:

Chief, International Programs Branch
National Oceanographic Data Center
NOAA/NESDIS E/OC22
Washington, DC 20235
Telephone: 202-673-5571 (commercial) or FTS 673-5571
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

Inquiries regarding the specific functions and services of World Data Center A, Oceanography should be directed to:

World Data Center A, Oceanography
NOAA
Washington, DC 20235

Telephone: 202-673-5571 (commercial) or FTS 673-5571
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet
NODC::SERVICES on NSI-DECnet

14.0 INDEXES

The following pages contain two indexes to the *NODC Users Guide*. Section 14.1 presents the Page Data List, which gives the current release data for every section of the guide. The Page Date List is updated whenever new or revised pages are issued and enables users to ensure that their copy of the guide is current. Section 14.2, the Index to NODC Products and Services, is an alphabetical index to guide sections that cover data for specific parameters or from specific instruments and other NODC products and services.

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15.0 APPENDIXES

The following sections provide technical details about certain NODC operations and procedures.

15.1 Appendix A: Geographic Grid Numbering Systems

With one exception*, NODC's geographically-sorted data files use the geographic grid numbering system of the World Meteorological Organization (WMO). In the past, NODC had also used two other such systems: Marsden squares and modified Canadian squares. The WMO system is now the NODC standard and used to support all geographic sorting and retrieval of data. The other two systems are still more familiar to some members of the marine community, however, so certain features of all three systems will be discussed here.

Although they vary in their specifics, these three geographic grid systems operate on a common principle: each provides a numbering system for identifying latitude-longitude squares on the earth's surface. In these systems each ten-degree by ten-degree latitude-longitude square is assigned a unique identifying number. The ten-degree square numbers assigned by each system are different, but the principle is the same.

Within each ten-degree square, each system also has a scheme for numbering the five-degree, two-degree, and one-degree subsquares. A one-degree square (that is, one degree of latitude by one degree of longitude) anywhere on the earth's surface can be identified by its ten-degree/one-degree square numbers in either the Marsden, modified Canadian, or WMO system. Therefore, any subsquare or area defined by a number of subsquares can be specified by the appropriate combination of ten-degree and subsquare numbers. These systems can be used to:

- sort data geographically,
- define a geographic area of interest, and
- retrieve data from a data file.

Exhibit 1 (inserted in the inside front cover pocket of this Guide) is a global chart giving ten-degree square numbers for the modified Canadian, Marsden, and WMO systems. Figure 15.1-1 shows the five-degree and one-degree numbering scheme used in the WMO and Marsden systems. Figure 15.1-2 shows the five-, two-, and one-degree numbering scheme used in the modified Canadian system. It should be noted that these two subsquare numbering schemes coincide only in the northwest (NW) quadrant of the globe. In the Canadian system, the subsquare numbering scheme is the same for all ten-degree squares all over the globe. In the WMO and Marsden systems, however, the subsquare numbering scheme varies in the four quadrants of the globe defined by the equator and the Greenwich meridian. The subsquare numbering scheme in the northeast (NE) quadrant is the mirror image of that in the northwest (NW) and those in the two quadrants south of the equator (SE and SW) are mirror images of those north of the equator.

**NODC's Ship Drift Surface Currents Data File is geographically sorted using the Modified Canadian Square system.*

Because it is the system used in NODC's master data files, a bit more detail about the WMO system is presented here. In the WMO system, ten-degree square numbers consist of four digits:

1. First digit: Quadrant of globe, where 1 = NE, 3 = SE, 5 = SW, and 7 = NW.

2. Second digit: Tens digit of degrees of latitude.

3. Third digit: Hundreds digit of degrees of longitude.

4. Fourth digit: Tens digit of degrees of longitude.

Figure 15.1-3 illustrates the WMO ten-degree square numbering system using the example of a station at 75°N, 43°E, which is therefore in WMO square 1704.

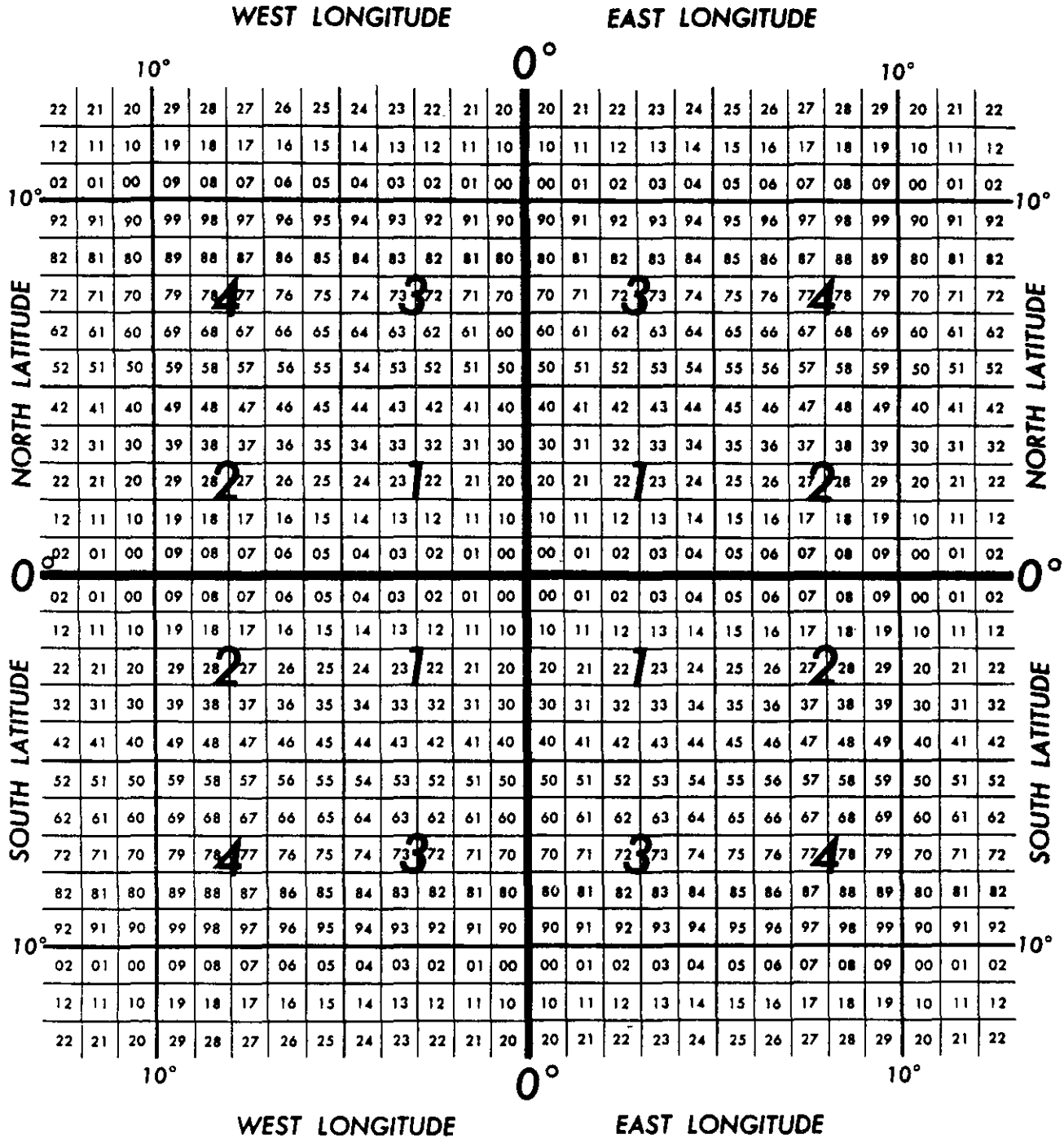

Figure 15.1-1. Five-degree and one-degree square subdivisions of WMO and Marsden squares. Subsquare numbers (including those for two-degree squares) in these two systems agree with subsquare numbers in the Modified Canadian system only in the NW quadrant.

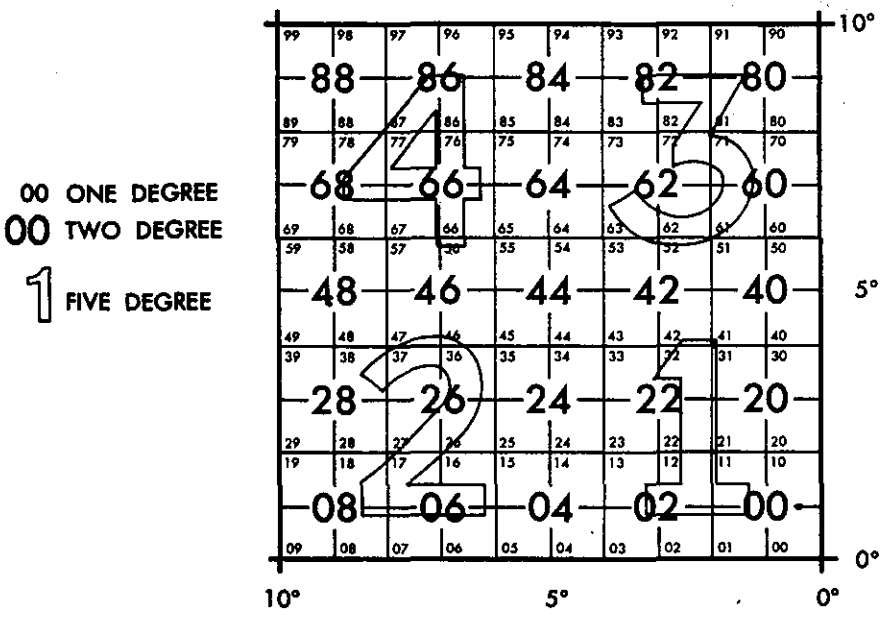

Figure 15.1-2. Modified Canadian ten-degree square subdivisions. Unlike the WMO and Marsden systems, in which subsquare numbers are symmetrical about the equator and prime meridian, subsquares are numbered identically in each quadrant of the globe.

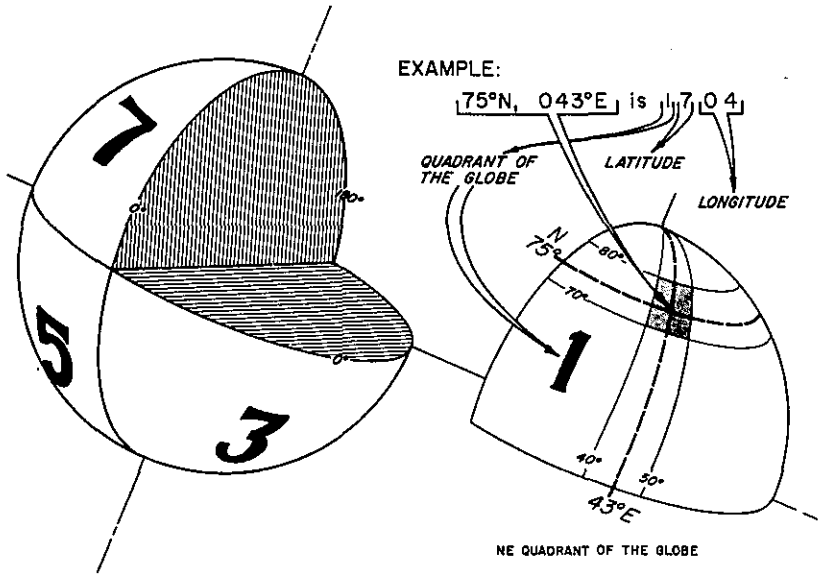

Figure 15.1-3. Sample derivation of WMO ten-degree square number.

15.2 Appendix B: Oceanographic Station Data Standard Depths

In the Oceanographic Station Data File (Sec. 4.1.1), the NODC interpolates parameter values from data at observed depth levels to the following standard depths:

NODC Standard Depth Levels (in meters)

0000	0125	0600	1300	4000
0010	0150	0700	1400	5000
0020	0200	0800	1500	6000
0030	0250	0900	1750	7000
0050	0300	1000	2000	8000
0075	0400	1100	2500	9000
0100	0500	1200	3000	

15.3 Appendix C: Low-resolution CTD/STD Data Depth Level Scheme

Data in the NODC Low-resolution CTD/STD Data File (Section 4.1.2) are derived from original high-resolution CTD/STD records (Section 4.1.3) by picking off data values at selected depth levels. The depth level scheme, which comprises 106 depths (in meters), including the 34 NODC Standard Depths used in the Oceanographic Station Data File, is as follows:

DEPTH INCREMENT*: (m)	2	5	10	20	25	50	100	200	200
	0 **	35	60	120	225	550	1100 **	2200	6200
	2	40	70	125 **	250 **	600 **	1200 **	2400	6400
	4	45	75 **	140	275	650	1300 **	2500 **	6600
	6	50 **	80	150 **	300 **	700 **	1400 **	2600	6800
	8		90	160	325	750	1500 **	2800	7000 **
	10 **		100 **	180	350	800 **	1600	3000 **	7200
	12			200 **	375	850	1700	3200	7400
	14				400 **	900 **	1750 **	3400	7600
	16				425	950	1800	3600	8000
	18				450	1000 **	1900	3800	8000 **
	20 **				475		2000 **	4000 **	8200
	22				500 **			4200	8400
	24							4400	8600
	26							4600	8800
	28							4800	9000 **
	30 **							5000 **	9200
								5200	9400
								5400	9600
								5600	9800
								5800	
								6000 **	

**Depth levels are at uniformly increasing increments except for the five underlined values required to complete the NODC Standard Depth Level Scheme.*

***NODC Standard Depths*

16.0 NODC ENVIRONMENTAL INFORMATION BULLETINS

This section of the *NODC Users Guide* is reserved as a place for users to file the data and publication announcements issued by the NODC under its series of Environmental Information Bulletins (see Sec. 7 for previous titles in this series). These fliers/order forms provide information on new NODC products and services. Although some of this information may later be incorporated into the body of the *Users Guide*, these announcements will continue to serve as a handy reference source that provides additional information.

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Compliments of the NODC . . .

Thank you for requesting a copy of the second edition of the *NODC Users Guide*. We hope you will find it useful.

On Monday, July 15, 1991 a new telephone system--and new telephone numbers--went into operation at NODC headquarters offices located in the Universal South Building, 1825 Connecticut Avenue, NW, Washington, DC 20235. Telephone numbers at other NODC locations remain unchanged.

Pages in the *Users Guide* that list the old numbers will be revised when we issue the first annual update to the new edition in October 1991. Until then we suggest that you temporarily insert this page with the new numbers just after Section 3.1, Page 2 that lists the old numbers for NODC's primary points of contact.

NEW NODC TELEPHONE NUMBERS

New telephone numbers at NODC headquarters in Washington, DC are of the form:

202-606-4XXX (commercial)
or
FTS 266-4XXX

where only the last three digits are unchanged. Please note that the 3-digit exchange for commercial calls (606) is now different from the exchange used for calls placed over the Federal Telecommunications System (266).

Listed below are key NODC telephone numbers. Customer requests for NODC data services should be directed to the User Services Branch.

Office of the Director
.....202-606-4594
.....FTS 266-4594

Deputy Director
.....202-606-4596
.....FTS 266-4596

User Services Branch
.....202-606-4549
.....FTS 266-4549

Ocean Pollution Data and Information Network
.....202-606-4539
.....FTS 266-4539

World Data Center A for Oceanography
.....202-606-4571
.....FTS 266-4571

Data Acquisition and Management Branch
.....202-606-4643
.....FTS 266-4643

NODC Fax
.....202-606-4586
.....FTS 266-4586